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# THE BUILDER

## A JOURNAL FOR THE ARCHITECT & CONSTRUCTOR

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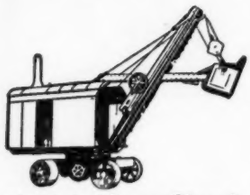
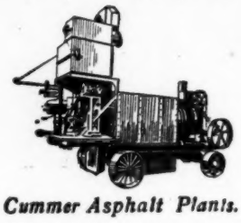
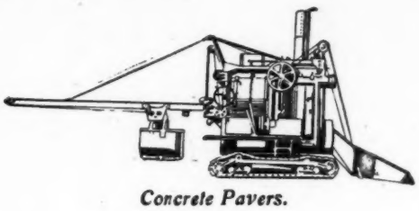


*Revolving Steam Shovels.*



*Cummer Asphalt Plants.*



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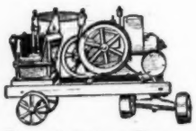
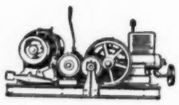
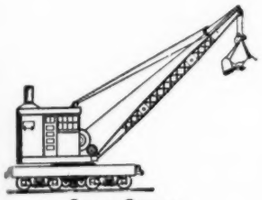


*Petrol-driven Pumps.*



*Petrol-driven Builders' Hoists.*



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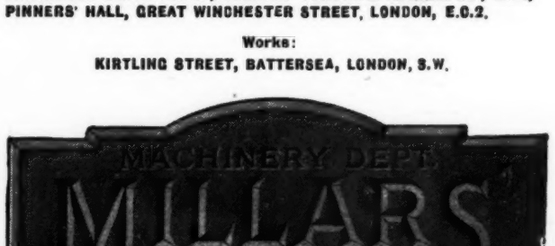


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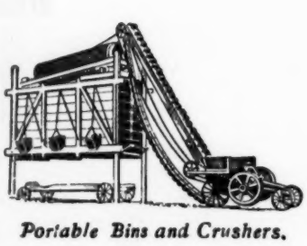

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**BUILDING EXHIBITION: STAND NOS. 22 & 23, 27 & 28 IN THE GALLERY.** M 216

# THE BUILDER

*A JOURNAL FOR THE ARCHITECT AND CONSTRUCTOR.*

WITH WHICH IS INCORPORATED THE "BRITISH ARCHITECT."

VOL. CXX.—No. 4080 APRIL 15, 1921.

## THE LESSONS OF THE STRIKE.

IT has always been our endeavour in dealing with labour questions to adopt a fair and impartial attitude, and, although this is often difficult, we count friends in all camps except that of the extremists; hence we hope that we are not entirely blind to more than one point of view. In a situation so critical as that now being experienced everyone is concerned, and the problems of labour are so interwoven that no trade can look on unconcerned when troubles arise in another. Of all industries, coal-mining is perhaps the most vital to this country. Fortunate possessors of immense tracts of this valuable mineral, the prosperity —we might almost say the world position—of our nation has in the past been built up on our coal supply. Large revenues have been obtained, in which all have shared, from the export of coal; our great iron and steel industries have been able to develop and compete with the foreigner through coal; while general industrial progress may almost be measured by the supply of heat energy for which coal and its products are the only available source on a large scale. It is therefore of intense importance nationally that coal should be readily and regularly available unless the whole programme of our national life is to be disorganised. It will thus be clear that we cannot allow either the coal owners or the miners to jeopardize the country by any action owing to differences or disputes between them. We do not hold that the prevention of such a possibility lies in Government control of coal mines. Our views on Government trading are well known to our readers, and we think have been fully justified in the past year or so. We rather look for the prevention of differences by the growth of saner views, and the forgoing of selfish aims and ambitions impossible of realisation.

This struggle is probably a good deal more than a mere question of wages, but we will deal with wages first. So far as de-control is concerned we have not the slightest doubt that the action of the Government is right. It is two-and-a-half years since the war ended, and it is no use continuing the farce of State-aiding industries out of the pocket of the tax-payer. Either they must all be State-aided, which merely means armies of officials to extract money by taxation and pay it back (less the heavy cost of collection and distribution), or all must arrange their own affairs so that workers, managers and shareholders may have a fair proportion of the income. We have often tried to hammer home the fact that wages cannot be fixed arbitrarily, but must depend on market prices, and that these are not prices concerned with this country alone, but world prices governed by many complicated factors. That wages must come down, not only in the coal industry but in almost every industry, is inevitable. This is no matter of employers endeavouring to sweat industry, and we think that possibly more good might be done by explaining this to the working man than by anything else. Such explanation should be made simply and honestly, and would require considerable patience. It is our old story of two neighbouring shops selling at different rates, one of them at a rate which purchasers cannot afford. This shop may pay high wages, but as a business concern it must soon come to an end. Now, though wages must fall and we do not think the Government broke faith by not continuing coal control till August, we do hold that the extent of the immediate fall in these wages is unreasonable. We will not attempt to decide whether the proposed new scale is a fair maximum having regard to all interests or not, but we think that the subsidy, as a matter of prudence, and indeed of fairness, should have been withdrawn in stages, or that the owners should have made a gradual wage reduction and banked part of the previous subsidy to carry on with. It may be said with some truth that the miners have had a very good innings and might well have saved something to meet the inevitable. If a professional man does well for a year or two he usually saves something which often tides him over lean years. Of course, many operatives are equally wise, but the majority are not, and the sooner thrift and absence of waste are really established nationally the sooner will industrial stability return. But it is no good moralising, and the miners could, no doubt, point to many cases of extravagance by their employers.

Leaving mere wages, this struggle seems to us to indicate the disappointment of the worker at the recession of that Utopia which was so freely promised as the result of our bitter war lessons. The new life, the better, healthier and happier conditions, the general social coming-together of all classes of the community. Where are these? Are they to be found in reduced wages and district rates? We much fear that they must be found in spite of these things. Ideals, unfortunately, must be subject to realities, and these ideals (genuine hopes enough at the time) have been—we will not say shattered—but rather deferred by a great deal of greed, selfishness and slackness, not on the part of one particular class, but of a very large part of the nation as a whole. We have not only got to pay for this, but if we want to see the realisation of these ideals we have got to turn to and alter our demeanour. The general attitude has been so far largely: "This ideal is for me, but where you come in I neither know nor care." National unity and improvement cannot be worked on individualism or even separate trade combinations—it must be general. That we still possess some national unity is one of the few pleasant reflections we can draw from this strike trouble; this indeed is a silver lining to the clouds and should give cause for thought to the small section of malcontents who think that a new heaven and earth can be obtained by forcible methods. We have no quarrel with combinations rightly used; much unjust oppression of the past has been removed by the power of combination and collective bargaining, but if this power is to be turned to holding up the nation it will result in becoming utterly discredited even by those whom it desires to serve. If Labour wants to govern it can do so readily enough by constitutional methods, but it must be made quite plain that we are not going to have a few sections of workers, numerous enough, but still only some 5 per cent. of our population, dictating the terms of our existence.

Let us hope that the loyal response to service will make this plain once and for all. Let it be frankly admitted; then we shall be the first to shake hands in good fellowship and settle down to make up for much lost time. As to the extremist element, we would say: "Grow older and wiser. There are many interests not your own which react upon you and you have many historical examples—some even now before you—which show the futility of ignoring the fundamental principles which underlie real social progress."

# NOTES.

**The Building Exhibition.**

The Building Exhibition now being held at Olympia was opened on Tuesday, when some unusually interesting speeches were delivered, a report of which will be found in our Exhibition Supplement given in this issue. The remarks of Mr. J. W. Simpson, President of the R.I.B.A., who declared the Exhibition open, deserve, and will no doubt receive, more than passing attention, as they are of a constructive and practical character, and contain suggestions which are of special value at the present time. Mr. Simpson's suggestions should lead to a useful discussion, and the promotion of a good understanding between architects builders and operatives.

**The Cairo Hospital Competition**

We give elsewhere brief particulars and plan of site of the important competition for an Egyptian Government hospital at Cairo. Very full particulars are provided, and some idea of its extent may be gathered from the fact that 1,250 beds are called for, with ten operating theatres, medical school for 150 students, lecture theatre for 200, dental school, mosque, out-patients' department for some 3,000 patients per day, sisters' home, students' hostel, and, of course, all the administrative and various needful accessory buildings. It will be remembered that the President of the R.I.B.A., Mr. J. W. Simpson, is the assessor.

**Government Control.**

Whilst the menace of a Triple Alliance strike is hanging over us; whilst we have the terrible lessons before us of Government control of shipyards, of railways, of coal and of agriculture, we can hardly wonder that the Vicar of St. Margaret's-at-Cliffe exclaims "At least save us from Government control, and may Mr. Powys's Society protect the rights of our ancient Church as well as its ancient buildings." Mr. Collins reasonably asks why, at this time in particular, Mr. Powys is so enamoured of Government control! He asks why it should be thought that the Office of Works would be more sympathetic towards the aims of the Society for the Protection of Ancient Buildings than the average Cathedral Chapter.

**Art Buildings at Cambridge.**

That the development of artistic effort in Cambridge may have a home and visible embodiment in a new building seems natural enough, and even desirable. It is held that a need exists for a centre for artists and lovers of the arts, as the needs of music, the drama, drawing and painting, and sculpture, are very inadequately provided for. Therefore the Cambridge Arts Union hopes to provide a building to include a theatre, a chamber concert hall, studio and workshops, library, committee rooms, and offices, which may cost one hundred thousand pounds. It is said that even thirty thousand pounds would provide a building which might at once unite the various artistic activities of the town. One cannot help wondering in view of the possible success of such an enterprise what kind of building would come into being, for the enduring charms of the old Gothic work at Cambridge have apparently been powerful enough to prevent much public appreciation of a modern building by an able writer and practitioner of Gothic architecture, in which no trace of Gothic feeling is to be found. We see here that the expression of beauty and character in modern building has to be obtained not only by independent thought but with some regard for local and national tradition if it is to make any attractive appeal to the public.

**Nameless Art.**

An exhibition of paintings, which is to be opened in May next, presents a new feature which, if it does nothing more, gives expression to the feeling of the time in regard to reputation, which is too often exploited by methods which do not always bear any relation to intrinsic achievement. Pictures shown on their merits, without divulging the authorship, are likely to receive a more unbiassed judgment as to their work. The critic in "Fanny's First Play," who asked, "How can I tell if it is a good play or not if I don't know who wrote it? If it is by somebody well known, of course it is; if it isn't, how can it be?"—gave a true picture of the influences which often direct art criticism. So the conductors of the *Burlington Magazine* have planned an exhibition at the Grosvenor Gallery with the object of enabling the work for once to be seen perfectly fairly by the critic, by purchaser, and by anybody from the streets; at which critics may be free to look at modern pictures "unjaded by the accumulated memories of many shows, schools and groups." It is to be hoped that it will break down prejudice and lift a veil from the eyes of every one of us. This projected anonymity will not effect much, however, unless the promoters themselves are well in touch with work of merit outside the ordinary channels, and we shall be interested to see whether the committee has adventured far into new directions. It will entail going out into the highways and byways of art, outside of the

**Carshalton War Memorial.**
Messrs. Bourchier, Tatchell & Galsworthy, FF.R.I.B.A., Architects.

**The Stone of Proluk, or "Giants Load."**

[The Stone of Proluk, or the "Giant's Load," is part of the Druidical remains at Ballymascanlan, Co. Louth. It has continued in very much the same condition for more than 125 years.]

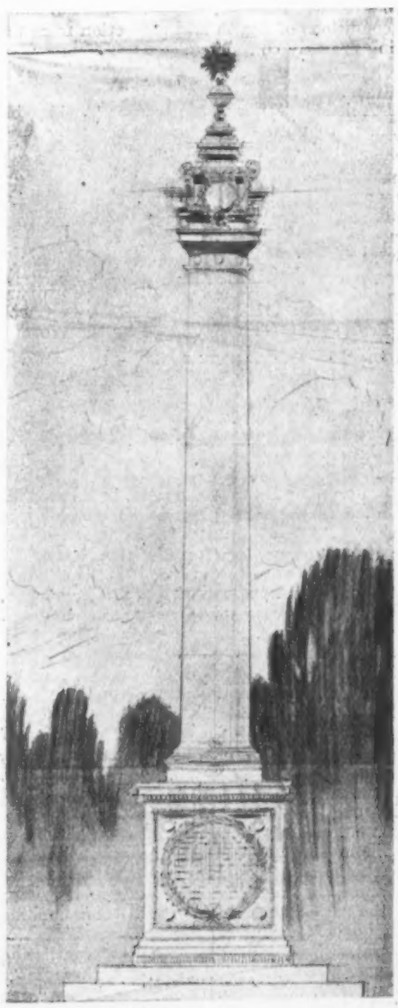
known, and they will have to recognise that some of the most vital work is being quietly done outside official sources, groups and schools. The committee who will appreciate and secure such work will require careful selection.

**Rural Beauty.** In a recent letter to the *Times*, Sir H. H. Johnson calls attention to the spoiling of the beauty of the countryside which is proceeding at the present time, and which there is so little means of withstanding. The erection of hideous advertisements, ugly garages, &c., added to the destruction of natural features, is, unfortunately, extending in all directions. We think that the time has come when civic patriotism can be appealed to, and we can recall an instance in which, on the purchase of a field, the new owner at once decided to cut down several beautiful Scotch firs that bordered the roadside. He was appealed to before they were felled, on the grounds of their beauty to the village, and the long connection of his family with it, and the service he could bestow to the community in preserving so beautiful a feature. This appeal to his pride in an inheritance to which his own ancestors had contributed had its effect, and the trees were spared to give pleasure and shade to the locality. The friendly appeal to his citizenship led to the right result. Much of the injury now going on occurs because no action is taken in time, when probably a word spoken in the right spirit would prevent the injury, and the responsibility lies just as much with those who are too indifferent as with the actual offender; and lies not more on those who commit the injury than on those who allow the injury to be done. The large number of farms being purchased by tenants in recent times has involved a great increase of destruction of the beautiful immemorial oaks and elms that gave charm to neighbourhoods, and every effort should be made locally to intervene against the destruction going on.

**Private Enterprise and Building.** The paper on "The Land Settlement Building Work of the Ministry of Agriculture and Fisheries," which Sir Lawrence Weaver read at the R.I.B.A. on the 4th inst., and a report of which appeared in our last issue, was followed by an interesting discussion, in the course of which the President (Mr. J. W. Simpson) said the Government departments were carrying out work which might justly be considered as the legitimate work of private enterprise. Although, according to Mr. Simpson, Sir Lawrence Weaver had said he saw nothing immoral in it, we think there will be few architects who will not agree with the President that it is a matter of very doubtful morality to tax the public to keep up Government departments that deprive them of their livelihood. The remarks of Sir Douglas Newton (Chairman of the Cambridgeshire County Council) have a bearing on the question. They had, he said, found that work done by a contractor was more economical than work carried out by direct labour. "A contractor is better fitted for the job than an official of a local authority; he is more astute, more economical, and more efficient in management of labour and better able to get the best out of the workmen. Contractors have a very direct incentive to get the work done well and economically, namely, profit, which is the moving impulse in all business affairs." He hoped the practice of setting-up large municipal works departments would not be encouraged. These remarks appear to indicate a growth of opinion in favour of private enterprise, which is to be welcomed.

**An Exhibition of Furnished Houses.** An exhibition of furnished houses is being organised at the Welwyn Garden City by the Design and Industries Association. In order to demonstrate the practical application of its ideas on household equipment, the Association has undertaken to furnish two types of the model houses now being erected on the first of London's satellite towns. One of these houses—costing only £750 to purchase—will be furnished suitably for operatives; whilst the second house will be suitably equipped for people of quite moderate means who have a little more to spend on their homes. All too frequently the house which has been planned with the greatest care has been spoilt as soon as the tenant has put his furniture into position. The ideal home in an ideal city should have, if not ideal equipment at least suitable equipment, and the furniture which has been approved for this interesting demonstration has been selected with a view to showing what is suitable for these particular types. The Exhibition opens at Welwyn on April 16 for one week, during which these two houses will be open free to the public.

**The Rent Act and Business Premises.** A meeting of tenants in the City was held last Friday to protest against that portion of the Rent Restriction Act, 1920, which relates to business premises being allowed to lapse, as is provided in the Act, on June 24 next, and a resolution was passed that the Prime Minister should be asked to receive a deputation on the subject. Precisely the same agitation will arise throughout the country when the time comes for the whole act to expire in June, 1922, and, although there may be no serious objection to that portion which relates to business premises being continued in force till the whole Act lapses, we must point out that control over house property, like control over any other industry, must be brought to an end as soon as possible, and that the time will shortly arrive when rents must be allowed to find their own economic level.



Godwin Bursary Drawing.

**Sketch Design (made in 1918) for War Memorial for a Position in a Public Park.**

By Mr. Charles B. Pearson.

# GENERAL NEWS.

### Franco-British Exhibition of Textiles.

The Franco-British Exhibition of Textiles, at the Victoria and Albert Museum will remain open until Sunday, April 17, inclusive. The Museum is open on Monday to Friday from 10 till 5, on Saturday from 10 till 5.30, and on Sunday from 2.30 till 5.30. Since the time of its opening the Exhibition has been visited by nearly 300,000 people.

### Teak from Siam.

Teak, in common with other commodities, shows a general rise in value, states the "Report on the Commercial Situation in Siam at the close of the year 1920," by Mr. T. H. Lyle, C.M.G. (London: H.M. Stationery Office, price 1s. 3d. net). The immediate pre-war price averaged £7 15s. 4d. per ton, culminating in £16 18s. 7d. for 1919–20, when the export was practically double that of the previous year, due to the better supply of shipping space to the United Kingdom and other countries.

### Higher Buildings for London.

A deputation from the London Building Act Committee of the Royal Institute of British Architects having attended before the City Lands Committee of the City Corporation and presented its proposals for increasing the height of buildings in London, the City Lands Committee afterwards passed a resolution expressing "sympathy with the views expressed that buildings in the City of London should be allowed to be erected to a height of 120 ft., with two stories in the roof, subject to the questions of conditions of health and protection from fire being properly considered."

### Furniture Beetles.

Furniture beetles often cause considerable damage to unprotected wood once they have been introduced into a house. To protect the wood from the egg-laying of the beetles and make it immune from a first attack it should be treated at intervals with paraffin oil or turpentine, more especially the joints and all rough and unpolished parts. The Trustees of the British Museum have published a pamphlet dealing with this subject, entitled "Furniture Beetles, Their Life-History and How to Check or Prevent the Damage Caused by the Worm" (price 6d.), by Charles J. Gahan, D.Sc., Keeper of the Department of Entomology.

### Home for Babies at Cardiff.

Work is to be commenced almost immediately on the erection of the Edward Nicholl Home for Babies, at Cardiff, to the design of Messrs. Ivor Jones and Percy Thomas, AA.R.I.B.A., of St. John's-square, Cardiff. The building is designed to house sixty-five babies, and has been planned in the form of the letter T; the whole of the rooms occupied by the children are arranged on the top of the T facing south, and the staff of twenty-three is accommodated in the north wing. The younger babies, about seventeen in number, will be accommodated on the ground floor, which will contain a nursery with a babies' bath and dressing-room adjoining. Wide and easy fireproof staircases at each end of the building allow for ample exits in case of fire. The staff wing contains an entrance-hall, matron's room, staff-room, kitchen, scullery, larders, store-rooms, &c., and there is a special milk-room with external access. There is a night nurses' room opening into the children's corridors and a separate room for washing up the children's utensils. A separate tradesmen's entrance, heating chamber, and cold storage in the basement are provided. The building will be heated by the low-pressure hot-water system, in conjunction with the ventilating scheme. The first floor contains three large dormitories, each accommodating sixteen cots, a large bath-room with three baths, cupboards and separate w.c.'s at each end of the building. The staff wing contains the matron's bed-room, six bedrooms for nurses, night nurses' room, isolation room, bathrooms, w.c.'s, box-rooms, linen-rooms, &c. The second floor contains seven bedrooms for the staff, bathrooms, and lavatories. The two main staircases run right up to this floor. The elevations have been treated after the manner of the French convent schools. A high-pitched roof has been adopted. The tender of Mr. F. J. Thomas, of Cardiff, at £21,944, has been accepted for the work.

# COMPETITION NEWS.

### Cairo.

For the Egyptian Government.—Designs for the new Qasr el 'Aini Hospital and School at Cairo. Sending-in day, October 3. Further information with regard to this competition is given on p. 479. (See also our issue for April 8.)

### Queensbury.

For the War Memorial Committee.—Designs for a war memorial, to cost about £800. Further particulars from the Secretary, Council Offices, Queensbury, Yorks. (Banned by the R.I.B.A. and Society of Architects.)

### Chauny.

The Municipality of Chauny (Aisne) invites plans from architects and engineers in France and Allied Countries for (1) a water supply for the town, and (2) a drainage system. Sending-in day, June 10. (See our issue for March 11.)

### Renfrew.

For the War Memorial Committee.—Designs for a war memorial, to cost up to £1,200. Members of the R.I.B.A. and the Society of Architects are requested not to take part in this competition until the conditions have been revised.

### Salisbury.

For the War Memorial Committee.—Designs for a war memorial. Sending-in day June 2. (See our issue for April 1.)

### Wick War Memorial.

The Royal Institute of British Architects requests Members and Licentiates not to take part in this competition until the conditions have been revised.

# MEETINGS.

Friday, *April* 15.

*The Architects' Welcome Club.*—Professor Beresford Pite on "The Effect of Building Materials on Architecture." At Olympia. 6 p.m.

Saturday, *April* 16.

*The Architects' Welcome Club.*—Reception in the Pillar Hall, Olympia, by the Presidents and Councils of the Royal Institute of British Architects, the Society of Architects, and the Architectural Association. 3 p.m.

Monday, *April* 18.

*Royal Institute of British Architects.*—Mr. A. E. Munby on "The Utility of Research on Building Materials." At 9, Conduit-street, W. 1. 8 p.m.

*Surveyors' Institution.*—Mr. J. R. Toovey on "Tithe Rent Charge." At 12, Great George-street, S.W. 1. 8 p.m.

Tuesday, *April* 19.

*The Architects' Welcome Club.*—Mr. Raymond Unwin, F.R.I.B.A., on "Our Towns and Villages and How We Spoil Them." At Olympia. 6 p.m.

Thursday, *April* 21.

*Society of Architects.*—Mr. A. R. Conder on "Westminster Abbey." At 28, Bedford-square, W.C. 1. 8 p.m.

# EXHIBITION NOTES.

### GUILDFORD BOROUGH HOUSING EXHIBITION.

Considerable enterprise has been shown at Guildford, where a most interesting building exhibition, organised by the Corporation, was opened on April 4. The primary object of the exhibition is to raise money for the Corporation's housing schemes, and this is being achieved through three channels: (1) Housing loans, at 6½ per cent., repayable in five, ten and fifteen years, secured by mortgage on the whole of the Council's undertakings; (2) through the sale of National Savings Certificates; (3) through the sale of Savings Stamps, many of which have been sold to school children and to those unable to invest on any but the smallest scale. The net proceeds of the first six days were £3,600. Furthermore, the exhibition has had the effect of stimulating a renewed interest in housing, and the attendance at the Drill Hall (lent free of charge to the Corporation), where the exhibition is being held, has exceeded all expectations. The exhibits have been selected with great discrimination, and are just of the kind to interest all visitors and not merely those possessing technical knowledge. Messrs. W. G. Tarrant, Son & Co., Ltd., have an enclosed stand, on which they show a potter's wheel at work making chimney pots; an oxy-hydrogen plant welding metal casements; and a mechanically driven tenoning and mortising machine. The Corporation's official exhibit is probably the one which attracts the most interest. It consists of two rooms, erected free of cost by Messrs. W. G. Tarrant, Son & Co., Ltd., who are the contractors for most of the Council's housing. The first room is an exact reproduction of a living-room in one of the Council's houses on the Stoughton site; leading out of this is an early Victorian parlour, complete in every detail and actually taken from an existing house. The room is lined with an ugly wall-paper, and insufficiently lighted by a small casement window; the mantel-shelf is laden with useless and ugly ornaments, and on the table is a glass case containing wax fruit. The contrast in passing from the Council's well lighted and airy room into this obnoxious apartment tells a tale that few can fail to appreciate.

Other interesting exhibits include a stand of Messrs. Curtis & Harvey, Ltd., at which are to be seen the actual processes involved in the manufacture of gas mantles. The Edison Swan Electric Co., Ltd., have a stall at which glass blowers are at work, and small articles are made and sold to the public, the entire proceeds being devoted to a local charity. A large part of the hall is devoted to the Ministry of Labour's scheme for training disabled soldiers. At one stand bricklayers are at work building sections of walls and chimney stacks, setting coppers, &c. The exhibit at this stand, however, which has attracted most attention is a portion of a cavity wall containing 62 bricks, above which is the following inscription: "These 62 bricks each well and truly laid represent one National Savings Certificate, price 15s. 6d. Government security. Your investment returns you 26s. Each brick costs 3d." Benches are fully manned by clock makers, plumbers, upholsterers, joiners and sign writers. The latter have designed an elaborate sign, which is displayed on the clock balcony in the High-street. A body of discharged soldiers have an attractive stall at which they manufacture, decorate and sell toys. An exhibit by the Guildford Gas Company contains many labour-saving devices.

It should be pointed out that none of the working expenses in connection with the exhibition are being met out of the rates; indeed, most of the services are being supplied free. The Guildford Corporation, and particularly the Chairman of the Housing Committee—Alderman H. Fentum Phillips—to whose energy the success of the scheme is largely due, are certainly to be congratulated on their enterprise, which is undoubtedly one which other local authorities would do well to emulate.

# CORRESPONDENCE.

## The Official Lust for Destruction.

SIR,—With reference to your article on the superior economy of adapting our remaining ancient and sturdy cottages for modern purposes to their senseless demolition and replacement by modern gimcrack erections, I would instance the case of the new garden suburb of Well Hall, near Eltham, where the L.C.C., although putting up hundreds of tenements in sham-antique style, faced, of course, in the present fashion with soot-collecting roughcast, are allowing the truly picturesque and substantial old farmhouse, known as "Nell Gwynne's Cottage," to fall into decay, although quite susceptible to restoration, when it would outlast a dozen of the flimsy new structures surrounding it. Such ignorant recklessness and unimaginative disregard of all historic and æsthetic considerations are typical of our officials, who, by some perverse fate, seem nearly all to be of the most sordid, vulgar, and tasteless type, and to have no appreciation of the value, beauty, and interest of the priceless ancient buildings over which they hold authority. Bromley Palace, the fifteenth century oak-framed cottage just destroyed at Beckenham, and the "Four Shoppes" at Cripplegate, are recent examples of such wanton vandalism.

EVACUSTES A. PHIPSON.

[*** While in sympathy with our correspondent's complaint of the needless destruction of beautiful old buildings, we do not endorse his sweeping criticism, nor, may we say, the way it is expressed.—ED.]

## The Measure of Output in Building.

SIR,—I think all experienced builders will agree with Mr. T. Sumner Smith (see *The Builder*, March 25 and April 1) that the evil of a flat rate of wages is that it prevents the proper gratification of ambition on the workman's part, and, with a great many others, I believe this is at the root of all the evils in the trade at the present day and which, thereby, have been gradually maturing during many years.

With his suggestion of a bonus system, I think builders generally will be at variance. The mere attempt to select "those employees who have shown special aptitude," &c., would leave an open door for favouritism or the accusation of favouritism; and jealousy of one another on the part of workmen is one of the great difficulties ever present, showing that the human element is not dead yet. The flat rate, breeding, as it does, indifference, keeps this jealousy to some extent latent; but, it is there, ready to show itself if one man thinks another is enjoying some advantage over him.

What the trade requires is a system of payment that shall be applicable under all circumstances, induce effort, and at the same time give the individual his due. Piecework as a means of payment by results cannot be all this. It can only be applied under particular circumstances—as it ever was and with advantage to all concerned when arranged in a fair and business-like way—the only way in which we can consider the whole question and which I am sure employers are anxious to do.

In addition to its contract work my firm does a very considerable jobbing trade, and in the joiners' shop an endless variety of items is produced—perhaps a dozen work benches for cigarette-makers, full of peculiar details which no one has seen before; and just now there are a lot of stools, trestles, draughtsman's desks—all of special design—for a scientific institution. For all such items a price has to be given by the firm, but could Mr. Smith's system be applied, or any piecework price be fixed for this? Certainly not. It would be quite impracticable For one thing, no data as to cost being possible to obtain, the attempt at anything to execute the work in this way would be far more bother than it could be worth, as we have to bustle into it, get it done to time and with as little external worry to the shop foreman as possible.

Under Mr. Smith's suggested scheme, how would he apportion the merit due to particular individuals on such work as this when the ingenuity of the foreman and the machining of the work before it goes to the joiners enters so largely into the financial success or otherwise of the job; and then, again, with the frequent changes in the personnel? It simply could not be done, and if tried would upset the whole shop and mill, even with regenerated trade unions in existence.

No, Sir, what we require (as scores of workmen have agreed with me privately), is that the men shall be paid, according to their proved individual merit and sustained reputation, a varying amount per hour beyond a flat rate—every man keeping an authorized written record throughout his career of the rate of wage he has been able to command, which would at once establish his quality and form his credentials. Work done under these conditions, I contend, would be payment by results judged on the highest plane, viz., by the result of a man's best efforts, which, of course, he would then have a proper inducement to put forth. It would be applicable everywhere and at all times, and, furthermore, would not interfere with piecework where that might be desirable.

The written record above referred to would do away with any "rule-of-thumb" business when a man is first engaged. I must, however, take exception to the statement that this "rule-of-thumb" is the customary method in placing men at their work. It is a foreman's constant anxiety to find or pick out the right man for the job, and any foreman will corroborate what I say. It is a great injustice to foremen to say otherwise.

Now for a word as to estimating and estimators. Given good quantities and an estimator of sufficient experience, a sound estimate can be made (or at any rate could be made in 1914), and "rule-of-thumb" is out of the question. What is "rule-of-thumb," as Mr. Smith refers to it? It can only be a form of ignorance, and we are not talking about ignorant people, but those who have learnt their work by, perhaps, long and dear-bought experience.

He lays great stress upon "costing." I ask, what data have we had in the past six years to go upon? Brazenly exhibited laziness by men at their work! Is that what we are to ascertain our "ratios of percentage" upon? No, Sir. The keeping of costs is of no value to the world until the men (generally speaking) mend their ways and work properly; and to do this the inducements I have referred to are, in justice, needed.

As to the suggested revised system of quantity taking, I will only say that it, at least, had better be deferred, as estimators have recently had quite enough to puzzle them, and will probably have still more, without alterations and improvements (?) in this respect. All they want is something definite in the amount of labour they can rely upon for the wage paid, and they can do the rest.

There is another aspect for consideration in regard to estimates. It is not always what you *should* get, but what you are *able to get in competition*. I am not by any means suggesting indulgence in the persistent cutting of prices, but times arise when something closer than usual is necessary, and then judgment (not "rule-of-thumb") comes in against any "ratios of percentage"—a job has to be considered in all its bearings and the estimate must be framed in this spirit and must be in the same way consistent throughout. So that it would never do to take your bill of quantities and price it merely by some previously ascertained "costs"; and I do not think Mr. Smith can mean that this should be done. A bill priced by such means would be no *estimate*. It might come out at about a right total; but, in pulling it to pieces, inconsistencies in reference to the nature and peculiarities of the work comprised in the job would reveal themselves, and would probably work very unfairly, for or against, in the adjustment of variations.

I trust the above appears to deride no suggestion made by Mr. Smith. Every suggestion made in good faith should be examined.

HENRY YOUNG.

## Increase of Output in the Building Trade.

SIR,—Referring to Mr. Sumner Smith's letter in your issue for April 1, we do not think he puts the case quite correctly in stating that "the master builders have nothing tangible to put before the trade unions in the way of what is the time occupied per given unit of output." It is true, perhaps, that no schedule has been produced by them, but is not this due to the attitude of the unions, which makes it scarcely worth while to go to the expense and labour involved? As a matter of fact, such figures are already available, having been obtained by a large firm during the war. Several hundred men were employed on maintenance and construction of new buildings and the installation of plant, and patriotically agreed to increase output by means of a bonus scheme. Several quantity surveyors were engaged on the proposal, and collaborated with builders, engineers, and representatives of the men, the result showing a very material increase in output. The rates were fixed at the same figure that a builder or contractor would normally allow for his labour in pricing-out quantities, many of which are given in the various builders' price-books—other rates were determined by analogy or by direct discussion. It was agreed that a rate once fixed should not be reduced, and the men were certainly pleased with the result; there were many regrets when the scheme terminated with the war.

As pointed out above, these constants are in existence, and at all events form a very substantial beginning to any scheme of payment by results.

HARRIS & HARRIS.

## Salaries of Architectural Assistants.

SIR,—May I, through the medium of your valuable paper, make a few comments on an appointment offered by a county council? This public body advertises for a junior assistant in the County Architect's department, at the magnificent salary of £150 1*s.* per annum, "ex-Service man preferred." Surely the ex-Service man is little thought of nowadays! He is asked to accept a wage of about half that paid to a bricklayer's labourer. It is time all such appointments were boycotted by all members of the Assistants' Union. No one can accuse the county of squandering ratepayers' money on exhorbitant salaries, at least not in the County Architect's department.

"AN EX-SERVICE MAN."

## Competition for a Licensed House.

SIR,—Referring to Messrs. Blount & Williamson's letter I regret that my communication should have given anyone the impression of a "savage attack." It was certainly not intended to be anything but a criticism—perhaps severe, but in my opinion justified. I desired to draw attention to the fact that there are far more important problems connected with public house design than the mere contriving of an attractive or well-balanced scheme—problems of whose existence the majority, not only of the competitors but also of their critics, appear to have been ignorant.

As regards my ability to read plans, I feel convinced it is not inferior to that of Messrs. Blount & Williamson. I noticed, immediately, the peculiar arrangement of their stairs and appreciated their intention. I none the less consider the door between bar and vestibule inadequate for a proper supervision of stairs and lavatory (the latter in the basement), and the doors to café and club room are useless for the purpose.

While on the subject of doors Messrs. Blount & Williamson might have explained how they proposed to obtain sufficient headroom for the main entrance under a landing at a height of eleven risers, as shown in their section, although on the plan it appears doubtful that even that number could be conveniently provided.

A. E. GURNEY.

# FAULTS OF MODERN ARCHITECTURE.

The following is a more lengthy synopsis of a paper on "Faults of Modern Architecture," delivered before the Northern Architectural Association at Newcastle on March 23, by Professor A. E. Richardson, F.R.I.B.A., which was briefly reported in our issue for April 1 :—

### Domestic Building.

Although not of the first rank as a means of directly expressing the ambitions of a people, the building of houses, whether designed for the rich or the poor, does in this country deservedly hold a high place in the public esteem. The English, more than any other people, have developed a sense of domestic convenience and comfort in a manner unapproached by the people of any other country, America excepted. In Tudor times, this country enjoyed a vernacular characteristically national. It was then that the tradition of masonry, brickwork and carpentry represented the highest ideals of craftsmanship. In the sixteenth century the warm stream of the Renaissance began to reach its northern limitations, with the result that a change set in for things more grandiose. As was inevitable, the change was slow; to the picturesque groupings of Tudor times came by roundabout routes the smattering of Classic detail, leading eventually to the adaptation of Du-Cerceaus compositions and finally to the successful grafting of the Italian exotic by the hands of Inigo Jones in the adventurous age of the early seventeenth century. For seventy years or so, in spite of civil dissension, the imported style, together with the remnants of native craftsmanship, lingered on. With the restoration of the monarchy, the modern, or eighteenth century, spirit came into being, and henceforth for a hundred and sixty years, so far as domestic architecture was concerned, the age of good sense prevailed. Without inquiring too deeply into the nature of the various revivals that took place from the time of Wren until the period when Nash gave London a uniform of stucco, and Grainger set out on the path of speculation to imitate this master in stone, with professional aid, in the streets of Newcastle, it is safe to say that apart from the benefit derived from Holland, France, and Italy in the matter of design and detail this country would not at the present time enjoy the wonderful heritage of brick and stone houses that it does, had it not been for the traditions of craftsmanship raised to such perfection in Tudor times. In eighteenth-century brickwork alone is seen evidence, both direct and conclusive, of the value of tradition and the freedom from mistakes and misapplications such sequence afforded.

The various phases of domestic work that arose during the quarters of the eighteenth century—work that speaks with eloquence of the reigning monarch, of the wits and statesmen, of the landlord and the merchant prince, in a more direct way than any number of history books—declined because new forces were at large, agriculture was giving place to mercantile production, and the peculiar insularity of the country and its relation to the continent of Europe called for more active participation in the world's affairs; hence it was that Stephenson's "Rocket," while of benefit to mankind in general, accelerated the decline of the arts in preparation for their expansion on an unprecedented scale in the period now before us. In the eighteenth century domestic architecture had, apart from the comforts and conveniences then considered polite, become artificial. It had gained on the polished, or, to be more correct, the academic side, but it was drifting towards the sham and the unreal. When we read of wooden mullions sanded to look like Portland stone, and stucco painted to look like Portland stone, we can understand how far the rot had set in. This does not imply that the use of stucco as such is wrong, neither does it mean that the ornamental cottages of Plaw and Crunden are bad. The domestic tradition of the eighteenth century lingered on in a way until the accession of Queen Victoria. In some parts of the country survivals of craftsmanship can still be encountered the origin of which puzzles the votaries of to-day to explain.

The English tradition for domestic work was only obscured for a short half-century before its truths made a new appeal to such men as Eden Nesfield and Norman Shaw. In this is to be seen the beginnings of that which is called "modern domestic architecture," ranging from so-called Queen Anne to the whole gamut of quasi cottage building, so expressive of the pre-war garden city. The war has changed all experimental nonsense; the high cost of materials, the need for rigid economy, and other causes have contributed to an observance of discipline and uniformity, doing more than a thousand lectures to bring domestic architecture into a restrained mood. An observance of tradition does not mean slavish copyism, plagiarism, or restriction of individuality, as some authorities seem to dread; it allows full scope for convenient planning, it admits of the craftsman once again being taken into the secret, it makes for human proportion, direct statement, and, what is most important of all, simplicity.

### Ecclesiastical Building.

England in the course of three centuries has produced many variations of the Christian religion, and her architects responding to the demand have endeavoured to be original and up-to-date. Is this not explanatory of the style of the churches expressing the period of the Restoration, of the Conventicles of the eighteenth century, of the altered views regarding the Established Church that obsessed our grandfathers, of the emancipation of the Catholic Church and the building of Byzantine cathedrals for Romans, Sassanian tabernacles for Hebrews, temples for scientists, halls for theosophists, and pinchbeck Gothic for Nonconformists? Because of the many religions, many styles are in evidence. Many of the individual buildings are wonderful, but the impulse that created Westminster Abbey, Salisbury, or the lantern at Ely, is lacking; hence it is that no beauty of detail, no powerful silhouette, either of plan or skyline, can atone for the absence of creative fire engendered by religion. Wren's masterpiece, St. Paul's Cathedral, aptly expresses an age, not of religion, but of reconstruction. We do not seek for inspiration among the stones of modern church design, taken collectively. There are, however, exceptions to which we would all go out of our way to pay homage. Perhaps because England displays a nice catholicity in her choice of religions, she can be allowed free scope in her selection of styles for religious use. Gothic architecture, if it be studied and adapted in the spirit of such masters as Sedding and Bodley with a view to its traditional value and specific uses, offers a basis upon which many things can stand. What is to become of the famous cathedrals and parish churches if some architects do not make it their care to specialise? Apart from the new Cathedral at Liverpool, some of the most daring experiments in modern Gothic are being undertaken in America. We have advanced beyond the days when the issue of the styles was fought by the Victorian pigmies, and we can now afford to be tolerant in all that applies to religion, even where the artificiality of a style is concerned.

### Civic Architecture.

In civic architecture, as in domestic architecture, the national traditions reflect the same influence and record the same conditions. Prior to the late seventeenth century, civic buildings other than examples of mediæval date were non-existent in this country. The eighteenth century witnessed the beginning of civics, as we understand civic building to-day, and the expression of city, town and borough life in the erection of public buildings, which at the time of their inception must have appeared of the first magnitude, but which are regarded to-day a being small. The keynote of the public work of the eighteenth, and, indeed, of the best part of the nineteenth century, was the dominant one of harmonious proportion and observance of academic rules. It was considered to be in better taste to be precise rather than original. Of the best public buildings of the past two centuries, those on traditional lines are monumental in character, there is a restraint in the treatment of the material, and the sculptural and other embellishments and accessories are in good taste. It is curious that the best traditions of civic architecture, unlike domestic work, have been continued from the days of Wren almost to yesterday. The Harris Library, at Preston, which was completed as recently as 1896, exhibits such traits in a strong manner. Thirty years ago, when many new town halls and other buildings were designed, architects seemed to think a mild version of English Classic would meet the case. There was a good deal of timidity in this decision, inevitable in such a change from the prickly work of the seventies and eighties, and also a desire to emulate contemporary French methods. No building contributed so much to this period of indecision as the Grand Palais of the Paris Exhibition of 1900. Since that time there have been further experiments in Greek, Neo-Greek, Roman, and Italian, following on American essays in a kindred direction, but we have not produced many buildings, which, emancipated from the fashion that produced them, will live as specimens of design in the grand manner.

### Buildings of the Commercial Class.

It is in the rebuilding of the business streets and centres of commerce that faults of modern design are most obvious. In the first place, architects are not wholly to blame, for they are compelled by modern conditions to erect buildings of a scale unsuited to the widths of existing streets. In the second place, they fear competition; third, there is no standard of taste for such matters. It is open for the tyro in building to erect a façade wholly bad in juxtaposition to one really good, and thereby mar the effect of the good one. Without specialising as to the nature of these defects, the use of giant orders, the addition of meaningless ornament of broken pediments of rustication and cartouches, is to be deprecated. Surely the treatment of façades should be determined by the requirements of human scale, which in turn produce harmonic proportion? Is it not possible to do something to preserve a reasonable skyline, to smooth down angularities, and to encourage repose? The contrary seems to be the case, judging from recent work. There seems to be little regard paid to the value of surface as surface and as a foil to windows. It is true that attempts, not without success, have been made to lay that bogey of every architect who builds in cities, namely, the sheet of plate glass that forms the basement of many buildings; but English people do not yet appreciate architecture as a commercial asset. The existence of a Committee of Taste in every city and town throughout the kingdom would do much to prevent the spoliation of principal streets. What Grainger with the aid of Dobson accomplished at Newcastle, what Nash did in London, and Wood at Bath, should in principle become imperative throughout the land. Theories of originality, of striking design, of expense and elaboration, do not enter into the question at all. We suffer from nondescript arrangements in our public streets because we lack the discipline, control, and resistance necessary to all art.

### Architectural Engineering.

Architectural engineering is a most lamentable thing. Oddly enough, the giant conceptions produced by engineers during the past forty years have the merit of scale, due, of course, to the objects they express; they have the merit of proportion, but there the good qualities end. It is pathetic to come across an engineer's attempt to make a building or an erection—be it of steel, masonry, or humble brick—a thing of

character. What the engineer lacks the architect possesses; there is the case in a nutshell. The pity of it is that the two seldom collaborate, and until this misunderstanding of the functions of each is overcome no real progress will be made. Some of the factories of the north of England and some of the power houses in the south exhibit features that are distinctly pleasant, not by reason of architectural embellishment, but on account of massed form which is in the main accidental. Artists, mostly futurists, look upon such works as typifying modern life, but even if such accidental things are passable they are far from the true meaning of architecture. As direct statements of fact they may be admirable, but we are as unlikely to advance the spirit of architecture from such concrete evidence as we are to obtain complete inspiration from the ruins of Karnak.

### The Present and the Future.

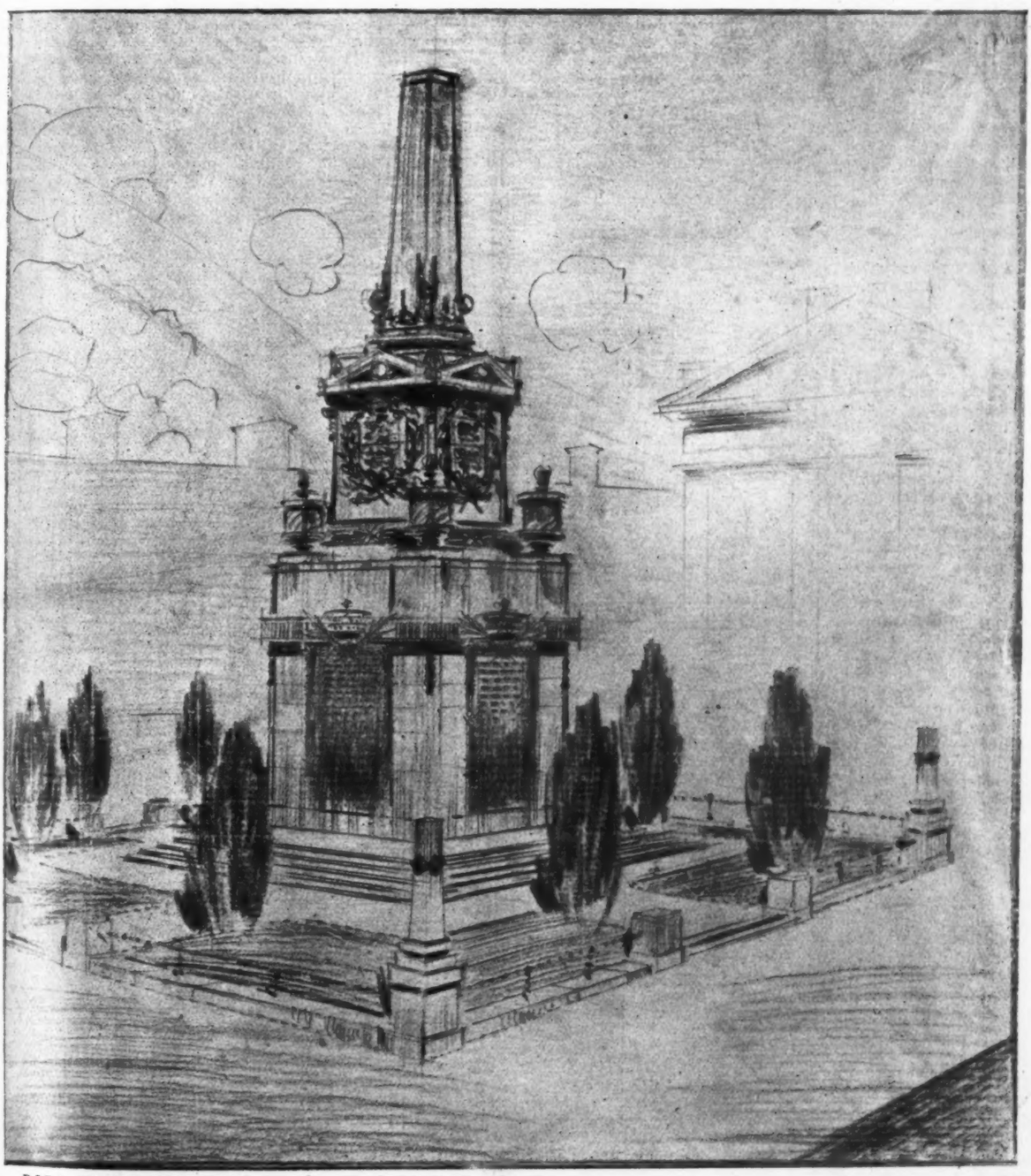
If we believe in architecture, good building will result. The architects of to-day enjoy the heritage of the past. Is it not their duty to work for the benefit of posterity, to rise above the humdrum and the ordinary, to leave the cities and towns a little better, not a little worse, for those who come after? There are few faults in English construction; our knowledge of sanitary science, of hygiene, of heating and ventilation, is above reproach, but scholarship, simplicity, good taste, reasoning, and logic will do more during the next decade to restore civic architecture in this country to the proud position it once occupied than lectures, literature and jargon together.

### Discussion.

A hearty vote of thanks to the lecturer was moved by Mr. T. R. Milburn and seconded by Mr. R. Burns Dick.

Mr. Burns Dick said he did not think the individuals whose work had been shown on the screen were altogether to blame for their works. The work that had been put up to opprobrium was the product of the time and of the people, and not of the individuals who produced them. While he was absolutely in accord with all that Professor Richardson had said, he thought he perhaps assumed too much from the individual. His was a counsel of perfection. There was one thing that was not emphasised sufficiently, and that was that the conditions were very different now from what they were in the eighteenth century. To-day they were often under the influence of magnates who did not want architecture and knew nothing about it, who imposed conditions that had destroyed a great deal of what they might have done had they had a free hand, such as the best men in the past had.

Replying to the vote of thanks, which was carried with acclamation, Professor Richardson said his attack had not been against individuals, but was directed against movements. They were all suffering from complexity and from lack of educated clients; they had to act both as patrons and artists. They must gradually eliminate bad work and things that appeared wrong.



R.I.B.A. Godwin Bursary Drawing.

**Sketch Design (made in 1918) for War Memorial for a position in a Public Square of a Provincial Town.** By Mr. Charles B. Pearson.

# INDIAN ART.*

MR. HAVELL is obviously a sincere and sympathetic guide to the regions through which he has himself travelled as a devout and devoted student, and his book is the product of his experience of Indian life and thought. In presenting to his readers the typical examples illustrated in the 222 pages of his book, he has made it his aim to explain the foundation in Indian religious and sentimental tradition which underlies the shape or colour of the objects themselves. His admirable description of the Himalayan sunrise and its age-long inspiration to generations of craftsmen gives the key to the author's mental attitude in preparing his handbook.

To the majority of English readers, whose knowledge of Indian art is possibly bound up with memories of addresses by missionaries, avowedly hostile to "idolatry" and all its manifestations, Mr. Havell's sympathetic understanding of his subject may come as a wholesome shock.

The parts of the book which deal with the origins of Hindu architectural forms are most welcome, as they bring before the Western reader some glimpse of the brightness of the East, revealing a depth of living interest in the symbolism of Indian art as it expresses itself in the forms of architecture, sculpture and painting. No one can see the illustrations of many-storied towers or rock-cut temples (plates XVI and XXIV) (Figs. 1 and 3) without feeling a curiosity to learn the meaning and if possible the origin of the curious architectural forms and the storied sculpture with which they are clothed. The characteristic curved gable which surmounts so many windows of Indian design, Mr. Havell traces back to a representation of the curved roof end of an early shrine through which the light fell upon the altar. "At first," he says, "the imitation of the roof end is very close, though no one familiar with Indian ways of thinking would believe that the whole intention of the sculptor lay in copying the form of a roof. He, no doubt, was thinking of the sun—or moon—light streaming in through the lattice work which filled the upper part of the arch, and of the face of the sun or moon, which, on certain holy days looked in at the window"

Some elements of controversy have necessarily crept into the book. The author finds himself disinclined to accept the views of earlier writers as to the value and extent of imported foreign influence on Indian art. In a land so frequently overrun by foreign invasions this subject is certain to present itself for discussion, but is apt to lead to the unconscious introduction of questions of taste among questions of fact. On plate VIa a carving is illustrated representing "The Forest Spirit" (Fig. 2) from one of the gateways of the Sanchi Stupa. British sculptors to whom we have shown this illustration find it repellent in the extreme, and it is interesting to note how a genuine partiality for native Indian art leads the author to compare this example with the sculptured dryads of the Greeks, and to describe it in the following terms: "But few artists would assert that the sculptor who created this vigorously-drawn and admirably modelled figure had anything to learn from the academic technique of the Gandhara School." At Gandhara, Græco-Buddhist influence affects the native Indian style. The author continues on p. 37: "However, it would be difficult to find in early Western art any examples of the woman-and-tree motive, which show as much freshness, plastic strength, and decorative beauty as this sprightly Indian wood nymph."

It is pleasant to turn from the comparison of artistic styles so remote from each other to Mr. Havell's description of the Indian dryad in her relationship to Indian thought: "Aranyani, the elusive spirit of the forest, a goddess of plenty, who opened freely her bounteous store to the villager, always kindly and gracious to man, though her children, the wild beasts, were to be feared."

The difficulty experienced by many Europeans in accepting Indian methods of artistic expression may be largely overcome by prolonged study, and the author's explanation of the meaning of Indian work to the Indian himself helps the reader over the first step towards sympathy with the style.

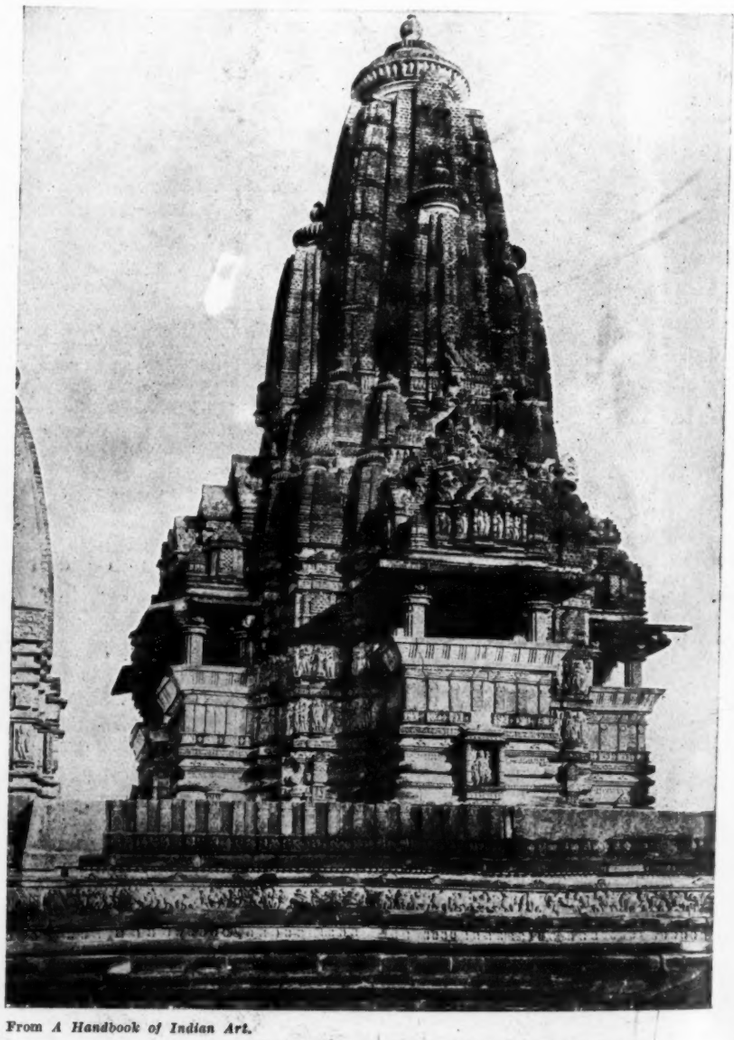
It is necessary to realise that we have our own conventions (not always "founded on fact") before we condemn the Indian craftsman's expression of his own theme. One has only to walk down the Strand to see architecture and sculpture as repulsive as some examples of Indian art appear, at first sight, and no amount of careful consideration will make these bad examples of English work tolerable to us. Mr. Havell may be prejudiced in favour of the Indian craftsman, but we should remember in reading his book that we are naturally prejudiced against a foreign style, developed in a different climate and under the influence of a religion distinctly contrary to our own.

Architecturally speaking we derive our canons of criticism from Græco-Roman arts, and it is difficult to appraise the value of architectural details which have no relation to the basis of our own standard. Capitals and bases in the Stupa house at Karle might well appear lacking in architectural quality to a student versed in the architecture of the five orders. They become acceptable when the symbolism underlying their every detail is made clear: "The vase forming the base of the pillar stood for the Cosmic waters, 'The All Brahman'; the shaft was the stalk of the mystic flower—the unreality upon which the world-life was supported · the bell-shaped capital was the world itself enfolded by the petals of the sky; the fruit was Moksha, liberation or Nirvana, which was the goal of existence; the Altar upon which the Devas were seated was the Tusita heavens." A footnote gives further information concerning the base: "Very likely the vase originally had a practical purpose, to protect the end of a wooden post from damp, or from the attacks of white ants: the symbolism of the craftsman was always based upon utilitarian purposes."

A connecting link between Hindu and Mogul architecture is to be found in the five storied assembly halls, of which the Panch-Mahall at Fatehpur-Sikri still exists. Built by Akbar, the Great Mogul, "it was probably intended as a meeting place for the Din-Ilàh', the Imperial order he instituted, which, like the Buddhist Sangha, had four grades or degrees. Akbar, as grand master of the order, would have taken his seat in the 'Upper room,' under the Canopy."

Already in this building the art of the Mohammedan makes itself felt. A delicacy of touch is observable in the geometrical forms of pillar, base, and capital: the massive and bossy projections that distinguish so many Hindu works are given up and replaced by a crystalline clearness and suavity of surface.

Mr. Havell, in speaking of these early monuments, takes care to inform us that "there is no peculiarity in design or construction characteristic of Western methods in any Indian buildings of the 16th and 17th centuries. If Western craftsmen had taken a leading part in



From *A Handbook of Indian Art.*

**Fig. 1.—Chaturbhuja Temple, Khajurāho: from West.**

* *A Handbook of Indian Art.* By E. B. HAVELL. London: John Murray. Price 25s. net.

From *A Handbook of Indian Art.*

**Fig. 2.—The Forest Spirit, Sanchi.**

the design of any Mogul buildings, they would certainly have left more tangible evidence of their handiwork than 'grandeur of proportions.'"

The analysis of the influences contributing towards a complete design leaves much to the observer's discretion, and before accepting Mr. Havell's statement, quoted above, it would be well to turn the pages of his work and observe the striking and obvious differences between the typical works of Hindu and Mogul architecture. One cannot blind one's self to the great differences in proportion and texture of the masses, and in the subjects and technique of the decoration. Granting Mr. Havell's contention that the Indian craftsmen executed both, and that the differences are due merely to the influence of the rule of Islam, one feels that the exponents of Mohammedan law in teaching the Indian craftsman what to avoid constituted themselves architectural designers of the first order.

Mr. Havell may be quite correct in saying that paper patterns play little part in the design of Indian buildings, but it does not necessarily follow from this that the design is due to the unaided skill of the craftsman. At the present time it is usual in the East for the building owner to discuss with his craftsmen upon the site the arrangements of his proposed building, and the function of architect is shared between the man who orders and those who carry out his instructions. He who pays the piper exercises his privilege of calling the tune in a much more intimate fashion than would be possible to an Englishman ordering his own house. In Palestine the plan of a new building is devised on the site itself; lumps of stone are placed to mark the corners of the rooms, and shifted about by the workmen under the direction and supervision of the proprietor, who constitutes himself architect, by verbal direction, without necessarily ever having handled the draughtsman's pencil or the mason's chisel and mallet. It is, of course, obvious that practical architecture is a matter of public interest in a country where this method can be carried out.

Possibly Mr. Havell may agree that the peculiar characters of Mohammedan building in India are due to a similar process, but he does not seem to have given much credit to the architectural interest and skill of those exponents of Mohammedan law who helped the Indian craftsman to modify and adapt his style. Unlike Dr. Vincent A. Smith and the French critic of Mohammedan art, M. Saladin, Mr. Havell refuses to accept the tradition that European genius played any part in the design of the Taj Mahall. He very delightfully traces the connection between the smooth and delicate contours of the Taj and the more rugged forms of earlier Hindu art, pointing out the essential unity of style and constructional detail.

Every reader will not, however, agree that constructional details are a fair guarantee that an old tradition in favour of the presence of Geronimo Veroneo as architect is necessarily incorrect. An army of expert native and foreign craftsmen such as are mentioned in Mr. Havell's list would need just such an official to act as their general to direct operations, settle disputes, and interpret the wishes of the Sultan, Shah-Jahan.

The chapters upon sculpture are made interesting by the author's explanations of the legends involved and their connection with the phenomena of tropical sunshine and mountain mists. Particularly fine, clear photographic illustrations are given of the statues in bronze or stone.

From *A Handbook of Indian Art.*

**Fig. 3.—Kailāsa Temple, Ellora.**

# THE REBUILDING OF DEVASTATED FRANCE—IV.

## THE CONGRESS OF MAYORS OF THE "LIBERATED REGIONS," AT COMPIEGNE.

By H. P. Cart de Lafontaine, Member of the Commission Technique de la Renaissance des Cités.

(*Continued from page* 402).

This draft Bill was taken as read at the first session, and members listened with great attention to the observations of the Mayor of Cambrai on the special difficulties which faced the municipality in the financing of its scheme for the reconstruction of the town in accordance with the new town plan.* The chief difficulty is with regard to the sites and buildings to be expropriated in the reconstruction. The Mayor of Cambrai proposed that all property in the war-damaged area—the central portion of the town—should be acquired by the State, and that the town should repay the amount of the purchase by the sale of freeholds to which increased value will be given by the realisation of the improvements in the new plan.

The difficulties with regard to this plan are of two kinds, (1) administrative, and (2) the probable long delay in repayment. The Mayor of Compiègne proposed an alternative scheme, namely, that the State should pay to the *commune* (municipal authority) the total amount of the "war damages" as fixed by the *Commission Cantonale*. As this would, in most cases, be more than was required to expropriate,† the town would have a balance sufficient to carry out the rebuilding until additional funds accrued from the increased values, etc. The Mayor of Compiègne gave some typical examples of the difficulties of expropriating war-damaged property where necessary for improvements and street widening.

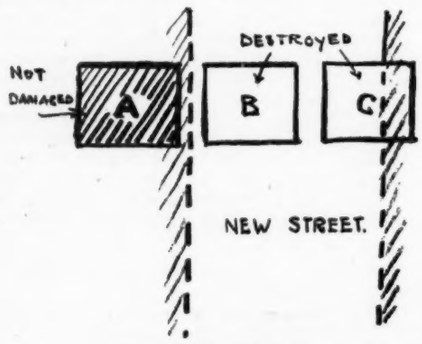



Illustration "A."

In case "A," he took three adjacent and similar buildings, "A," "B," and "C." Of these, "A" had not been damaged, and was not affected by the new plan. It was recently sold at auction for 100,000 frs. "B" and "C" had both been entirely destroyed during the war, and were both affected by the new town plan. "B" would entirely disappear, and a large portion of "C" could not be rebuilt. Now, as the houses were similar in all respects, the price paid for "A" would evidently be equitable for the expropriation of "C." But for "B," where the whole site was taken, they would have to pay 100,000 frs. plus a certain sum to cover the increased cost of rebuilding elsewhere—say, 500,000 frs. in all. If this were done they would almost certainly be faced with a claim from the owner of "C," who would say that (as he could not rebuild on the smaller site) he must be allowed a correspondingly increased price to enable him to rebuild elsewhere.

In case "B," there was a building projecting into the line of a new street. The building had been partly destroyed during the war, but the portion abutting on to the new street was intact or habitable. The value of the whole building was now 100,000 frs., and the claim for "war damage" amounted to 200,000 frs. The solution he proposed, in this case, was to acquire the whole building for 100,000 frs., with an allowance for rebuilding elsewhere at

Illustration "B."

the usual co-efficient of 5, *i.e.*, the total price would be 100,000 frs. by 5 = 500,000 frs., less the amount of "war damage" to be paid by the State = 200,000 frs.; total net price, 300,000 frs. This was the reason why in the draft Bill it had been considered that the towns should be given the right to claim the "war damage" indemnity for all damaged buildings that had to be acquired to carry on the town planning schemes.

A third example of a difficult case was used by the Mayor of Compiègne to illustrate his remarks on the necessity for getting the State to act in accordance with the general principle laid down in Article 61 of the War Damages Compensation Act of April, 1919—"that grants may be made to *communes* to enable them to acquire land (*terrains nus*) or damaged buildings where these are affected by their town-planning schemes"—and was as follows:—

A building is valued at 35,000 to 40,000 frs., including the site. The owner uses the premises for the purpose of carrying on a small draper's business. His business capital amounts to, say, 7,000 to 8,000 frs. The "war damages" are valued by a qualified valuer at 65,000 frs. If the municipality acquires the property it will have to spend 40,000 to 45,000 frs., but if it has the right to claim the war damages it will realise a profit of about 20,000 frs., of which one-half would go to the State, whilst the remainder would be available for "general improvements" (*travaux d'édilité*). It may be urged, said the Mayor of Compiègne, that this proposal would inflict hardship on the *sinistrés*, and would aggravate the crisis which is so acute in respect of housing. With regard to the first point, it must be remembered that if a town council possessed the necessary funds it could expropriate owners for the creation of new streets, &c., at any time, whether their premises were affected by the war or not, and with regard to the second point, it was important to note that if the town acquired property for this purpose it was not obliged immediately to pull down the building—it could, in fact, leave the tenants in occupation until the expiration of their leases. The town would thus be able to avoid the necessity for paying compensation for loss of trade and removal, &c., as the tenants would have ample time to find other premises. At Compiègne the scheme had been adopted, and all would have been well but for the fact that in the present state of things the municipal authorities were unable to guarantee immediate payment. Unfortunately, speculators were not so hampered, and many deals had been made which would result in a large profit when the "war damages" (which were acquired with the property) were eventually paid to the present owners.

The Mayor of Soissons made an important contribution to the debate, of which we give the following abstract:—Referring to the speeches of the previous delegates, he said they had listened with great interest to the views of the Mayors of Cambrai and Compiègne in their proposed solution of the problem before the Conference; a solution, he considered, was of vital importance to those towns which had suffered, but he thought that the two schemes which had been proposed were only partial remedies. After the Armistice, they were all urged to take a large view of the question of reconstruction, but they were now faced with great difficulties in consequence of having responded to this appeal. With regard to the solution suggested by the Mayor of Compiègne, it was proposed to ask the State to authorise towns to buy the whole of the "war-damaged" property affected, and proposed that the cost of improvements should be met by the receipts from re-sale of premises, plus the amount received in "war damages." This presupposed a sufficient sum available in the funds of the municipal authority, which was just what most of those in the devastated region had not got. He also thought the town could not justly expropriate the right of the *sinistré* to his "war damages." The solution proposed by the Mayor of Cambrai asked that the State should acquire all war-damaged property affected (Art. 46, Act of April 19, 1919), including the cost of rebuilding (*droit de re-émploi*). The Minister objected because the sale of this property would, very probably, not realise a sufficient profit to pay expenses and reimburse the State. He felt that what was wanted was a general solution. In the Act it was stated that grants would be made to towns to make it possible for them to carry out their "*plans d'alignement.*" But a long-delayed circular which had recently appeared had caused profound disappointment. At Soissons, the estimated minimum cost for rebuilding in accordance with the approved town-planning scheme was between 75,000,000 and 80,000,000 frs. They were now informed that the State would only contribute 45 per cent. of this sum, leaving the town to find 65 per cent. = 29,000,000 frs., which would be equivalent to an addition of 9 frs. 30 to the local rates for a period of ten years. It was, he felt, essentially unjust that the inhabitants of towns which had been completely wrecked by the war should now be taxed (to provide improvements rendered necessary by the new Act) to a much greater extent than the inhabitants of towns outside the war area, whose trade or business was still intact or who had homes to live in. This problem was a national question, and must be dealt with by the State as such.

No general meeting was held on the second day of the Conference.

On the third and last day of the conference the committees presented their reports, and M. Loucheur (now Minister of the *Regions Libérées*) attended to explain the Government's intentions with regard to the financial problems involved in the town-planning or reconstruction schemes. He admitted that the real difficulty was to find actual cash, and regretted that at the present time the *Trésor* could not help them much. He suggested the most workable scheme would be for each town, or possibly a group of towns, to form a co-operative society for reconstruction and to raise a local loan to cover the cost of rebuilding. He could promise that the State would guarantee the interest on subscriptions at, at least, the same rate as that paid to subscribers to the last National War Loan—six per cent. As an alternative, M. Loucheur suggested that possibly they might induce some towns with which they had relations in England (a reference to the "adoption" of French towns) to assist them in this way. In addition to the State guarantee there was the security of the town's collective "war damages" if they grouped themselves into a "*co-operative.*"

It was agreed that a further Congress should be held in Paris.

* This will be dealt with in detail in the next article, "The Reconstruction of the Town of Cambrai."

† See previous article (Draft Bill, Articles 3 and 4).

## Leading Contents.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## ILLUSTRATIONS.

### Chase Offices, Waterbury, Conn.

This building was begun in 1917 and completed in 1919. It is located on the opposite side of Grand-street from the City Hall. It has a frontage of 241 feet, and a transverse dimension of 96 ft. 9 in. It is constructed of Indiana limestone. The height of the cornices and string courses is the same as in the City Hall, and the module of dimensions is the same, so that it balances with its neighbour across the street. This building houses the offices of the Chase Rolling Mills and other Chase Companies, manufacturers of brass piping, rolled sheet brass, and special brass goods. The city of Waterbury is the centre in America for the brass industries, a number of important mills being located in that city. The cost of the building was $822,800. The architect is Mr. Cass Gilbert, of New York.

### East Ham General Hospital.

We give this week the second premiated design in the recent competition for East Ham General Hospital, Shrewsbury-road, E. 7, by Mr. H. T. Wright, F.R.I.B.A., of 5, The Grove, Gosforth. In our issue for March 25 we gave the design placed first, by Messrs. F. E. Mennie and C. R. Smith.

Mr. Wright, in the report accompanying his design, says :—

The whole of the required accommodation is provided in a simply-arranged scheme to the rear of Shrewsbury House, leaving the existing buildings either for purposes of revenue or for such hospital purposes as may later be determined. It is not proposed to demolish them, as the scheme submitted leaves a reasonable portion of the site unbuilt upon. The ancient lights have been respected. The arrangement of the outpatients' department in relation to the Hospital has received special consideration. The operating block is entirely separate and distinct, and is arranged on the ground floor, having a north light. The three ward blocks are on the first and second floors, and are entirely cut off from one another and from the administrative portions of the scheme. The sisters', nurses', and servants' bedrooms are planned in a compact and convenient manner on the third floor. The kitchen is also cut off entirely, is centrally placed, and the service arrangements to every part of the building are carefully thought out. The service and stretcher lifts are conveniently placed.

The walls are of bricks, with stone dressings where necessary for copings, etc. In designing the elevations, economy has been primarily considered, but it is thought that a suitable effect has been obtained by mass and proportion alone, with an entire absence of ornamental features. Floors throughout are of concrete and reinforced concrete finished with wood where indicated on plans. Other floors will be finished as their various uses require. Flat roofs of reinforced concrete covered with asphalte will be used; pitched roofs have been avoided on account of the scarcity of good skilled labour and on grounds of economy.

Walls internally will be of "Adamant" plaster. All angles in hospital portions will be rounded. The walls of wards, operating rooms, etc., will be tiled to a height of five feet. Heating is by hot water on the low-pressure system. The boilers are centrally placed under the entrance hall, and are in duplicate. Calorifiers are provided in the heating chamber for the supply of hot water to the various points. The wards will be warmed and ventilated by "Shorland" stoves, two fires to each. Fresh, warmed air will be introduced through these stoves to the wards, which in addition will have ventilating radiators in suitable positions. Vitiated air will be extracted by means of open window fanlights, assisted by outlet ventilating flues at ceiling level, carried up with the smoke flues.

The cost and the cubic contents are as follows :—409,587 cubic feet at 1s. 11d.= £39,238. This estimate is inclusive of heating, ventilating, gas and electric lighting, roads, paths, fences, and drainage; but is exclusive of equipment of the hospital.

### St. Andrew, Catford, S.E.

This church, situated near Hither Green Station, was built largely in memory of the Rev. Mr. Pedley, by the Rev. E. C. B. Philpott. The design was selected in a limited competition in 1903, and the fittings have been added at various times since, the organ-screen and processional cross being the most recent. The church holds about 830, and cost about £8,000 to build. It may, therefore, be taken as a cheap church (even pre-war). The materials are two colours of Bracknell red bricks and Portland stone. A desire for a warm appearance caused a good deal of red brick to be used inside, but the chancel is intended eventually to be plastered. The roofs are Oregon pine. The plan of the church is very simple (see Middleton's "Modern Buildings") and the arcade runs the whole length of the church, whilst the nave aisles are only passageways; a complete ambulatory encircles the enclosed chancel. The chancel is, however, somewhat marred by the fact that tie-rods were insisted on, although they are unnecessary as the thrusts are counterpoised by flying buttresses. The lectern, litany desk, and nave seats are not from my designs. Mr. F. Minter, Putney, was the contractor, and the woodwork details of a decorative character were made by Messrs. J. Daymond & Son, Westminster, to my details.

PHILIP ROBSON.

[Some of the fittings will be illustrated in our next issue.—ED.]

### Phœnix Offices, Birmingham.

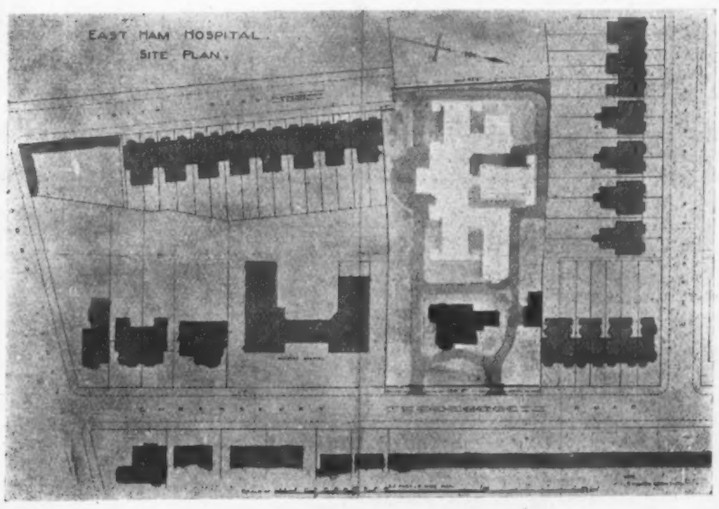
Messrs. Ewen, Harper Bros. were the architects for the Phœnix offices, Birmingham, illustrated on page 474. The builders were Messrs. William Sapcote & Sons, Birmingham; the constructional steel and iron work was by Messrs. Charles Wade & Co., Ltd., Aston; the heating installation by Messrs. Henry Hope & Sons, Ltd., Birmingham; the door furniture, and ironmongery by Messrs. Walker & Worsey, Ltd., Birmingham; the revolving doors, panelling, counters and fittings by Messrs. Samuel Elliott & Sons (Reading), Ltd.

### Steel-Frame Dwelling-Houses.

Messrs. Young & Co. (6, Queen Anne's Gate, S.W. 1) are the designers and manufacturers of the "Fewac" special form of light steel-frame construction, which has been approved by the Ministry of Health. The system is eligible for a loan and grant to private builders. Messrs. F. E. Williams, A.R.I.B.A., and A. Cox, F.R.I.B.A. (34, Henrietta-street, W.C. 1), the consulting architects, have prepared plans and elevations of various types of houses and cottages in which this system is employed.

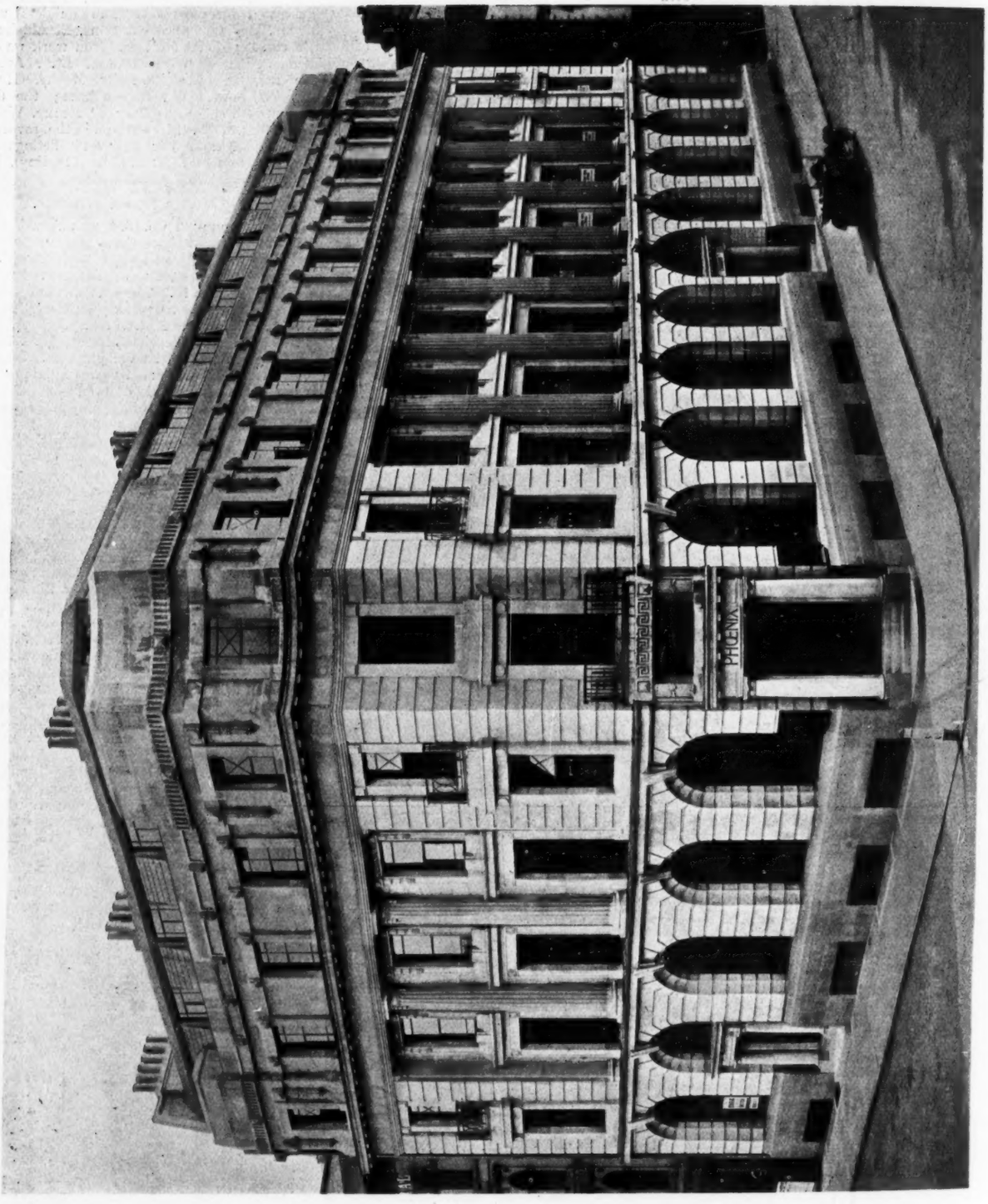
The system consists of a steel-frame structure, the uprights, floor beams and roof trusses of which are placed six feet apart and the whole braced with four rows of longitudinal angle irons. The roof is composed of tiles and slates laid upon boarding and timber purlins, the latter being supported by the roof principals constructed of steel angles accurately formed and bolted. To the steel beams, which are bolted to the angle stanchions, the continuous 4½ in. by 2 in. timber floor joists are securely fixed by patent bitch clips. It is claimed that floors so constructed are very much stronger and more rigid than those built by any other method. The steel angle uprights are cased in ballast concrete, and the panels between are filled in with 2½ in. clinker slabs finished internally with plaster. Vertical battens are fixed on the outsides of the slabs, and the exterior face may be finished with elm weather-boarding, tiles, slates, stucco, or any other efficient weather-resisting covering.

The cost varies according to the locality, but would average between £1,400 and £1,500 per pair of houses. We understand that the engineers would willingly give assistance to those interested.

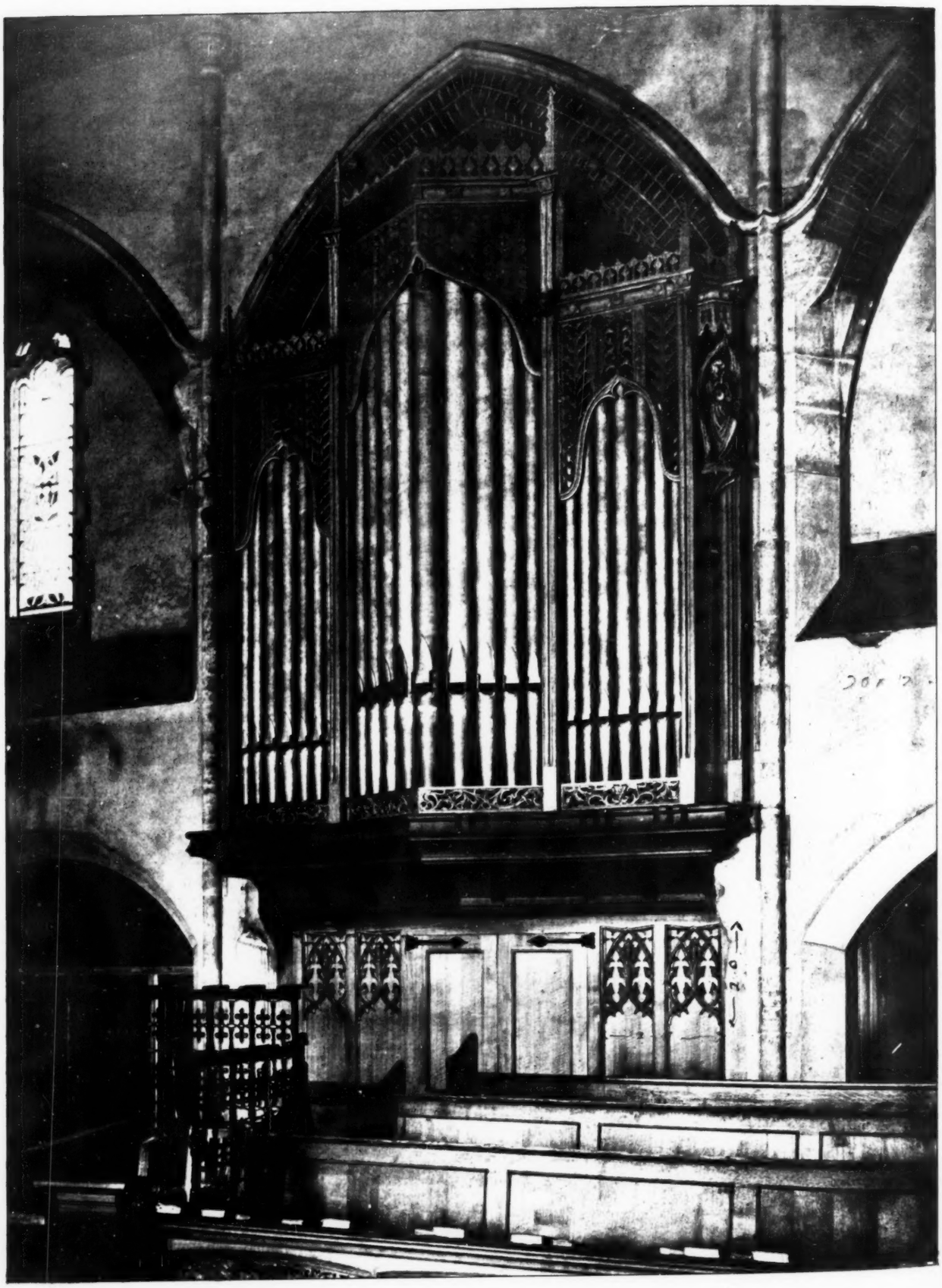



**East Ham Hospital Competition.**

Second Premiated Design, by MR. H. T. WRIGHT, F.R.I.B.A.




**Phœnix Offices, Birmingham.** Messrs. Ewen, Harper Bros., Architects. (*See p.* 473.)



ST. ANDREW'S CHURCH, CATFORD: ORGAN CASE. MR. P. A. ROBSON, F.R.I.B.A., ARCHITECT.

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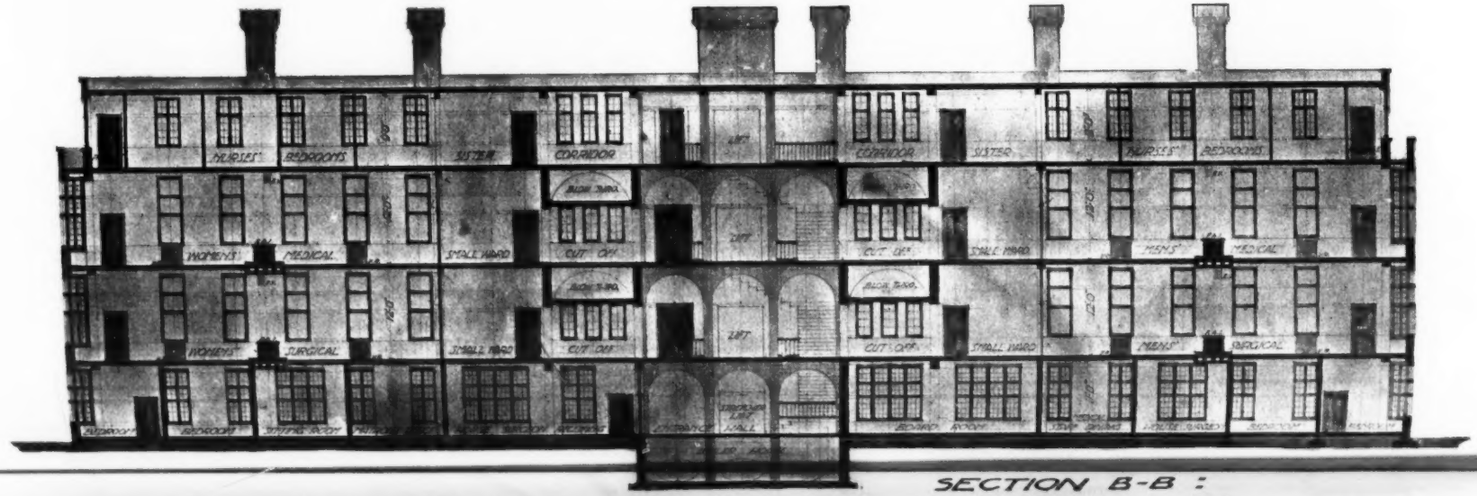


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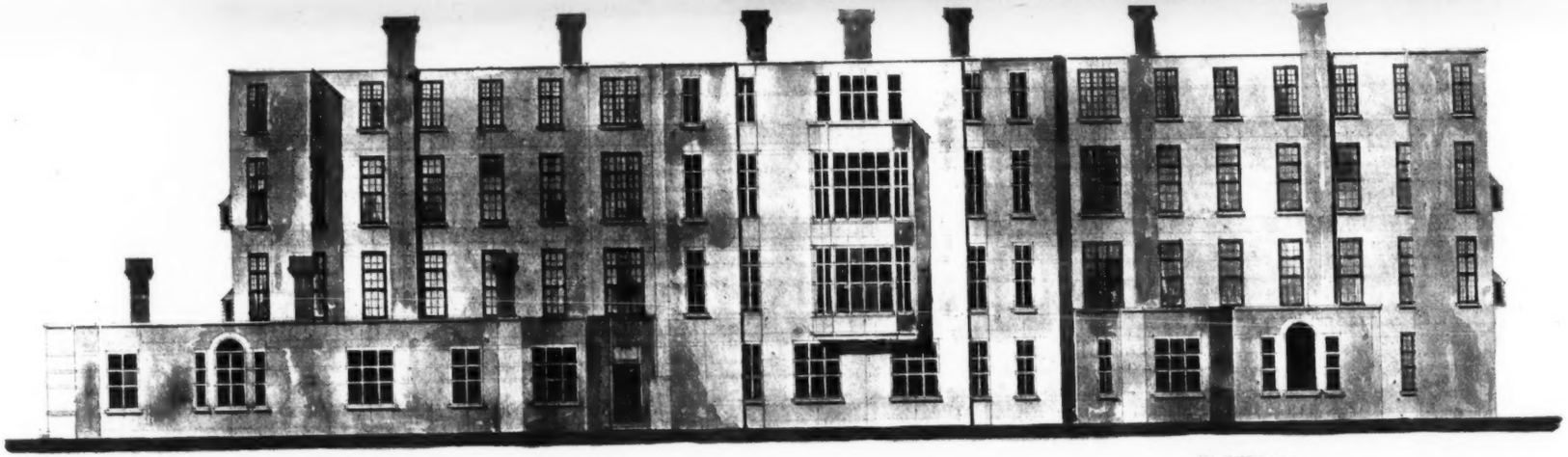
THE BUILDING

SECTION B-B :



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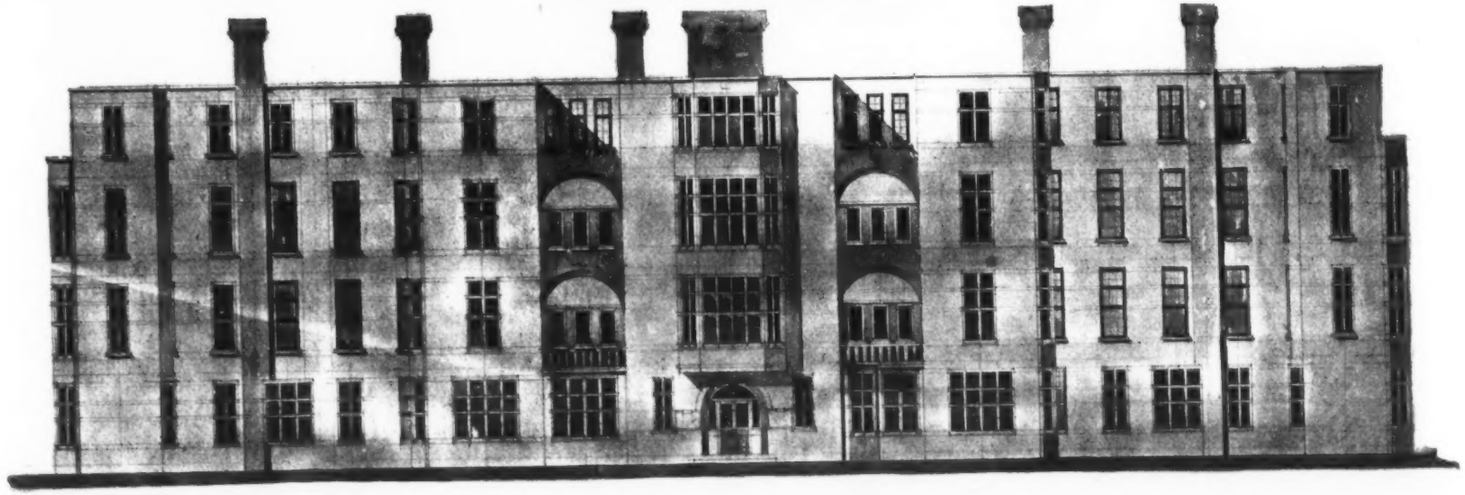
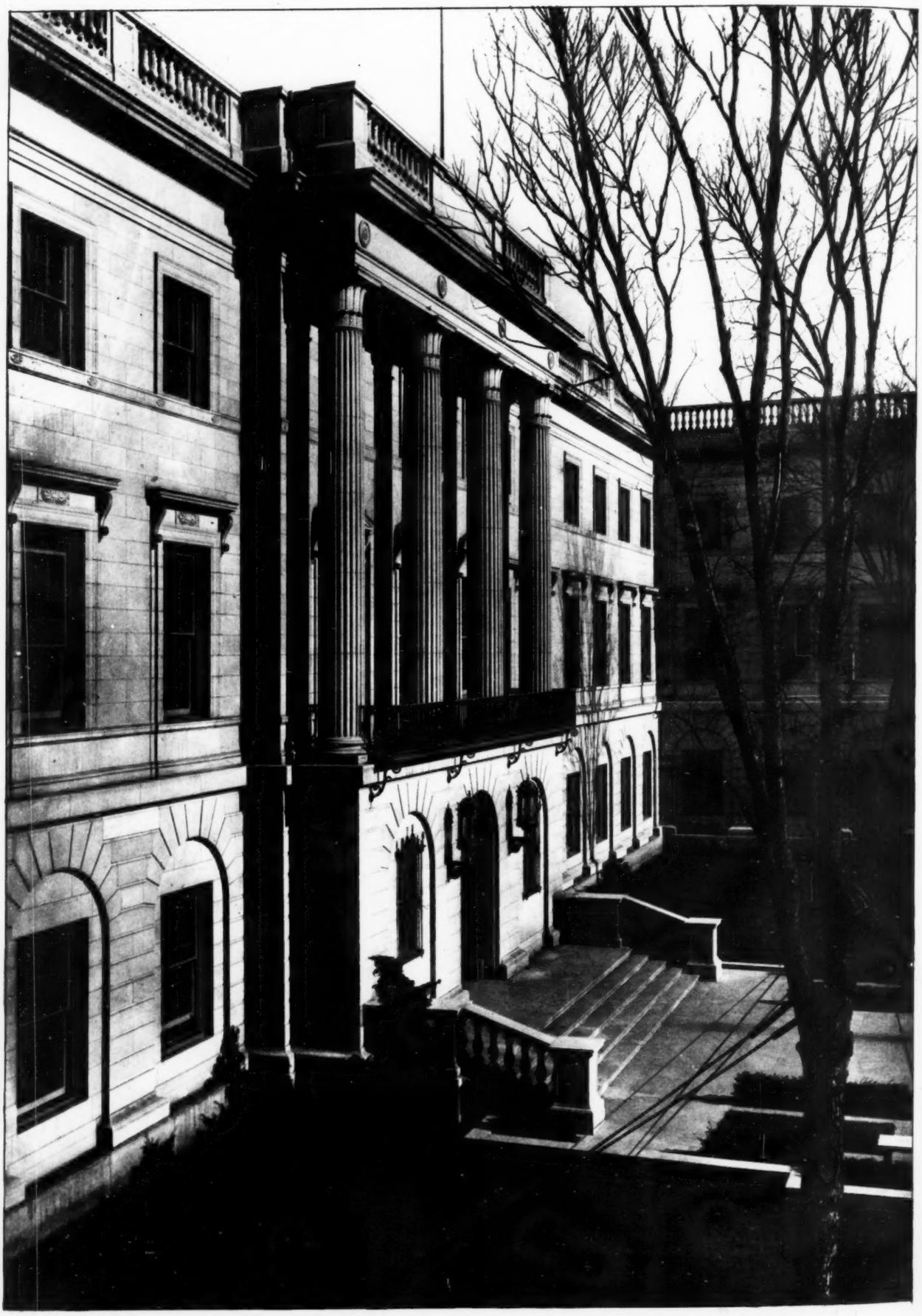


SOUTH ELEVATION :

EAST HAM HOSPITAL COMPETITION. SECOND PREMIATED DESIGN, BY MR. H. T. WRIGHT, F.R.I.B.A.



CHASE OFFICES, WATERBURY, CONN: MR. CASS GILBERT, ARCHITECT.

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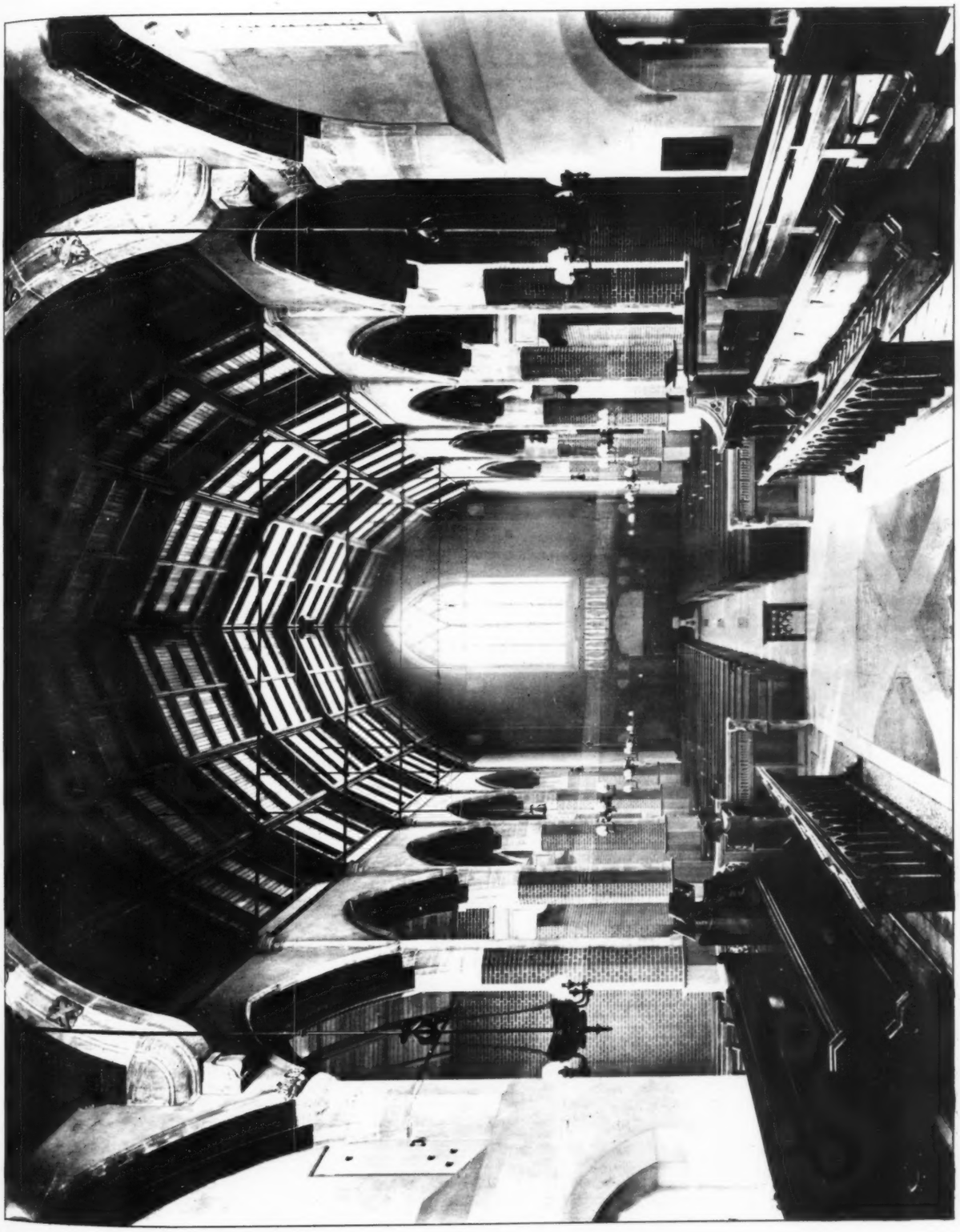
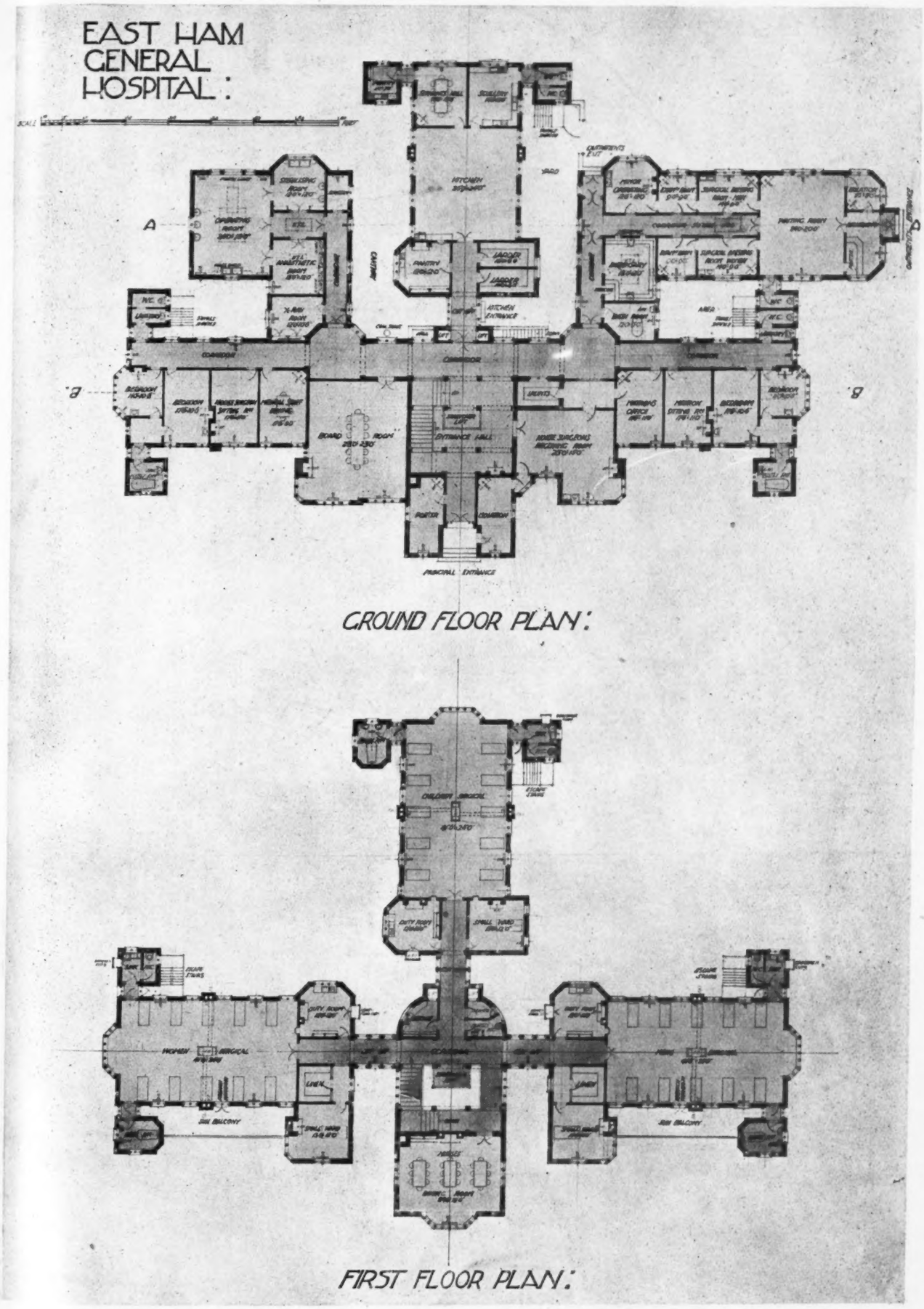
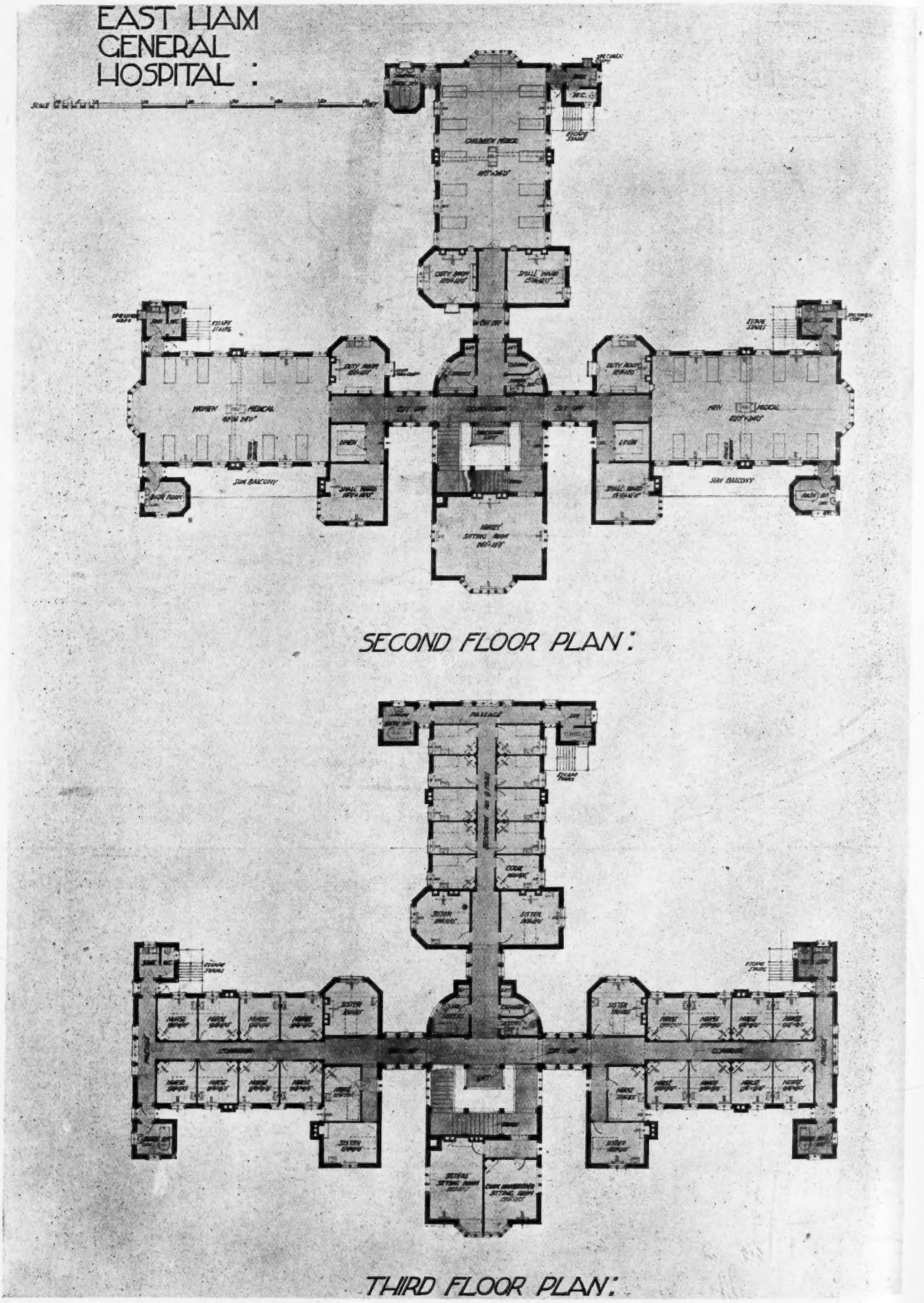


ST. ANDREW'S CHURCH, CATFORD: INTERIOR VIEW. MR. P. A. ROBSON, F.R.I.B.A., ARCHITECT.




**East Ham Hospital Competition.** Second Premiated Design, by Mr. H. T. Wright, F.R.I.B.A. (*See p.* 473.)

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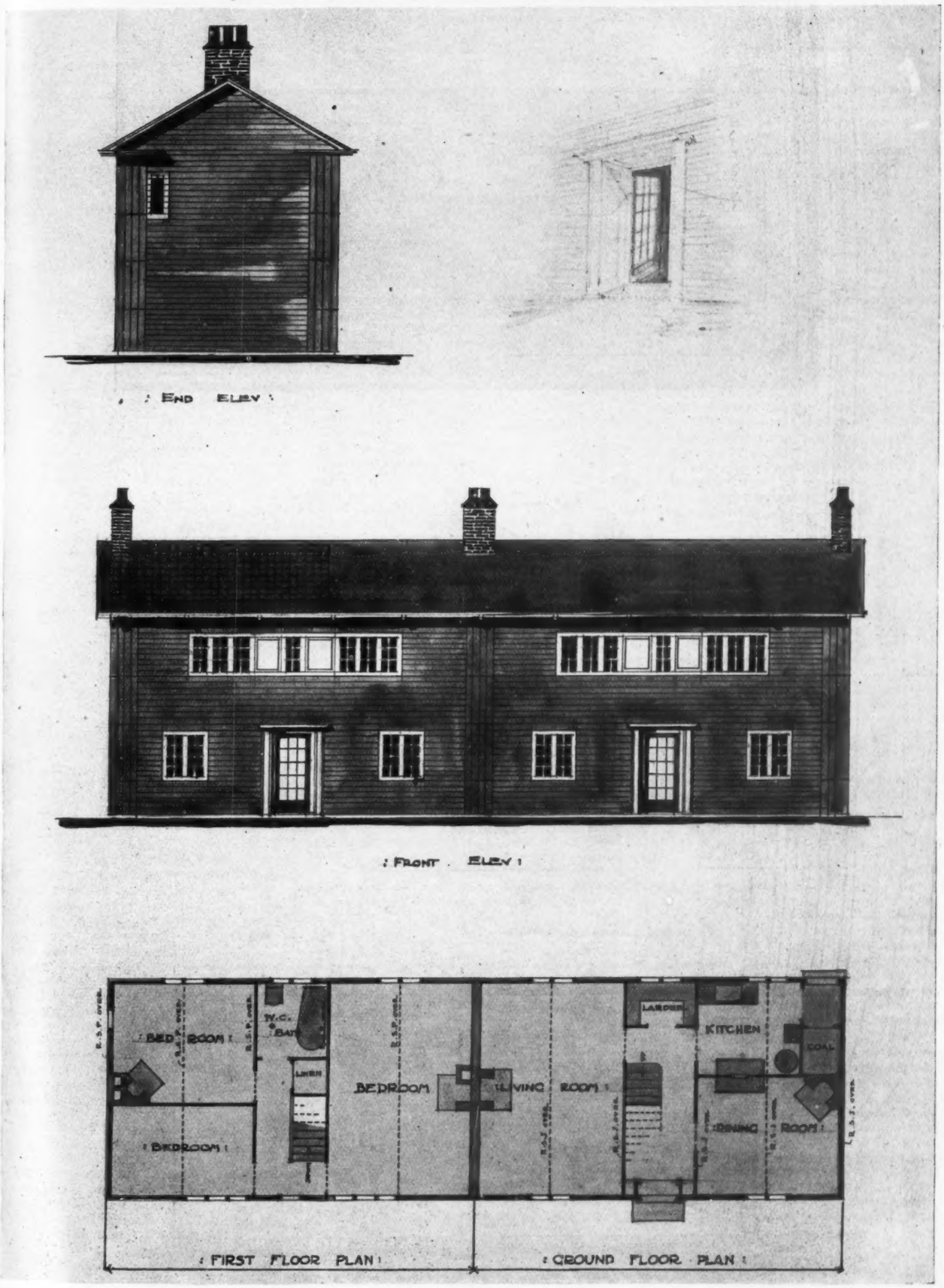
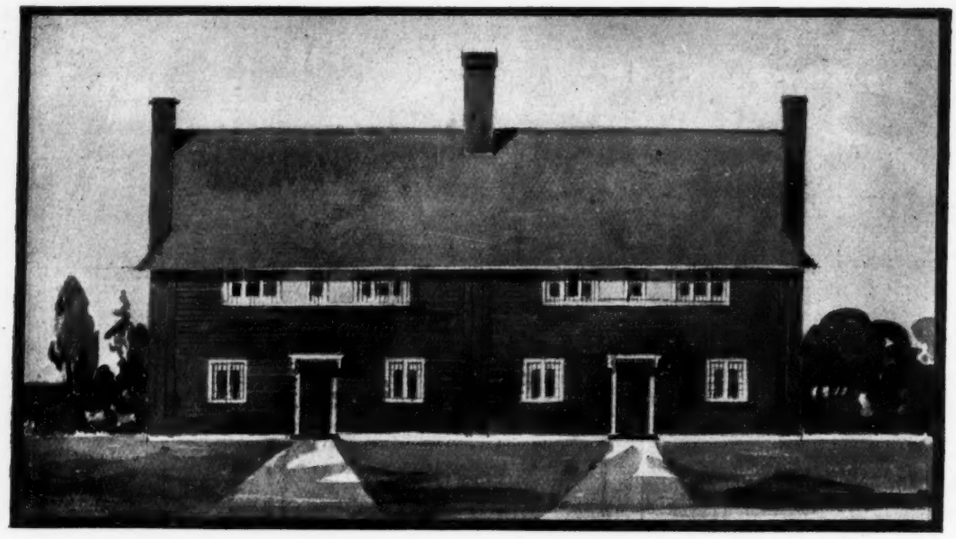
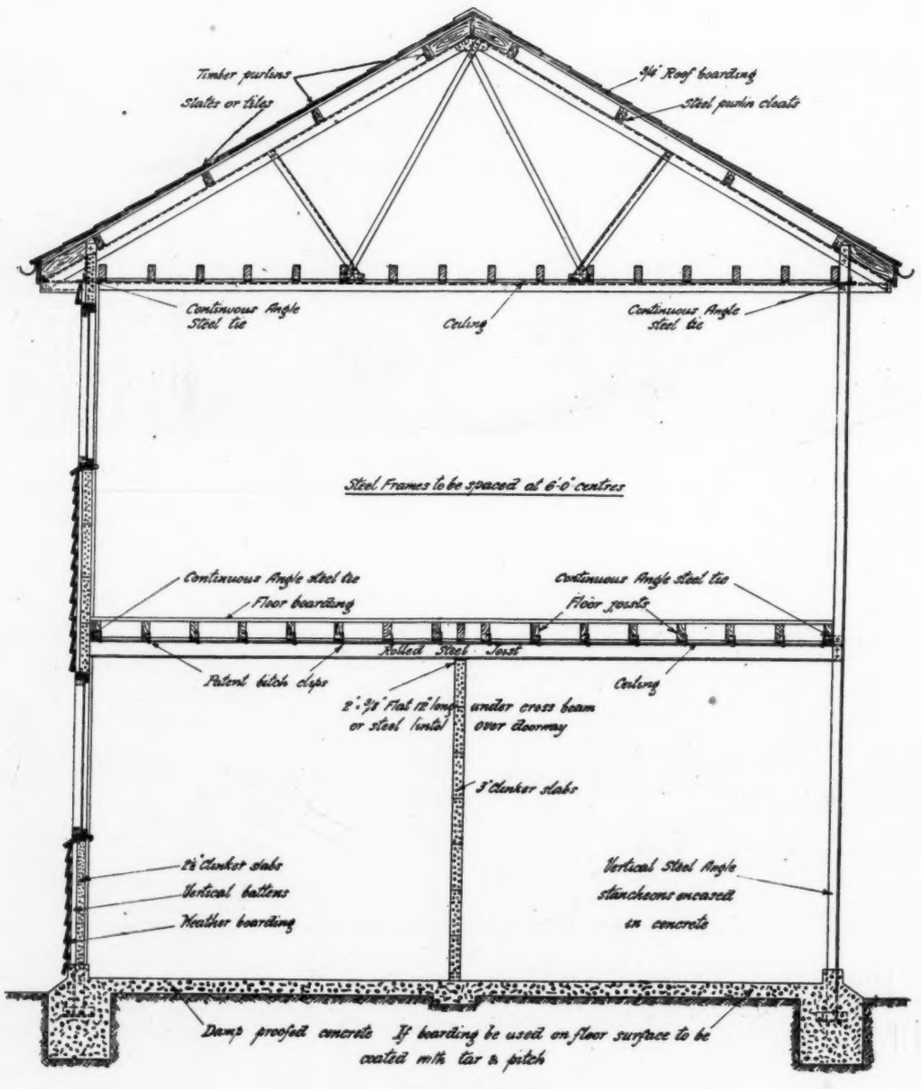



**Steel-Frame Houses.**

Messrs. F. E. Williams, A.R.I.B.A., and A. Cox, F.R.I.B.A., Consulting Architects. (*See p.* 473.)





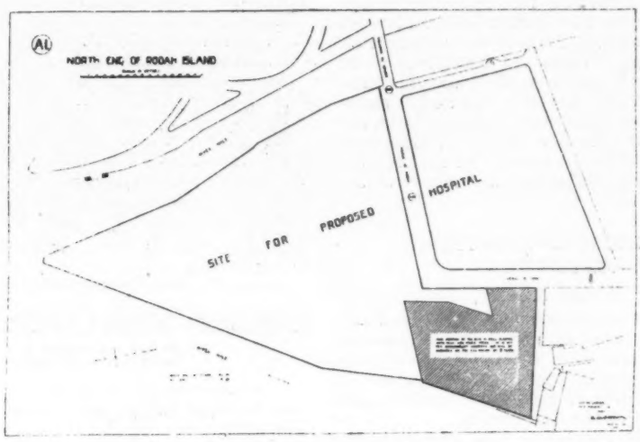

**Steel-Frame Houses.**

Messrs. F. E. Williams, A.R.I.B.A., and A. Cox, F.R.I.B.A., Consulting Architects; Messrs. Young & Co., Engineers. (*See p.* 473.)

# QASR EL 'AINI HOSPITAL AND SCHOOL COMPETITION.

As noted in our last issue, the Egyptian Government invites competitive designs for the new buildings of Qasr el 'Aini Hospital and School at Cairo, with accommodation for 1,225 beds. The competition will be conducted in two stages, the first of which (preliminary) is open to all architects; the second (final) will be restricted to twelve architects, six of whom will be selected by the assessor from those of the design placed first by the assessor in the final competition within twelve months of the assessor's award therein, authorizing him to act as architect for and proceed with the new buildings, the author shall in such case receive as payment for his services in connection with the preparation of the competition drawings the sum of ten thousand Egyptian pounds.

In the final competition the whole of the




**Qasr el 'Aini Hospital.**

submitting the most meritorious designs in the preliminary competition, and six others nominated by H.H. Government with the advice of the assessor, Mr. John W. Simpson, President of the Royal Institute of British Architects, whose judgment will be final and binding. All applications for particulars of the competition, which are very full and of considerable interest, should be addressed to:—H.E. the Minister of Public Works, Cairo, Egypt, or to the Secretary, Royal Institute of British Architects, 9, Conduit-street, W. 1. Applications must be accompanied by a cheque or draft for three Egyptian pounds (or its equivalent in sterling), which sum will be returned to all applicants who submit a *bona fide* design, or who return the particulars in good condition within one month from the date of their application.

The Conditions of Competition state that competitors submitting *bona fide* designs in the final competition will each receive an honorarium of five hundred Egyptian pounds, and the author of the design placed second will receive a premium of five hundred Egyptian pounds in addition to his invitation honorarium.

It is the intention of H.H. Government to appoint the competitor whose design is placed first by the assessor in the final competition as architect to carry out the new buildings, in which case the honorarium will be deemed to be a payment on account of the architect's commission. Should any disability of such competitor, or other unforeseen circumstance, render it, in the opinion of H.H. Government with the approval of the assessor, contrary to the public interest to appoint as architect the competitor whose design is placed first by the assessor, H.H. Government may, with the approval of the assessor, adopt the design of another competitor.

If no instructions are given by H.H. Government to the author designs may, at the discretion of H.H. Government, be exhibited, publicly or otherwise, and with the authors' names attached thereto, after the assessor has made his award. The strictest anonymity will be enforced with regard to the authorship of the designs submitted. Designs in the preliminary competition, properly packed, labelled "Qasr el 'Aini Hospital Competition," and addressed to "His Excellency the Minister of Public Works, Cairo," must be delivered on or before October 3.

All questions which competitors may desire to ask respecting the Conditions of Competition and Instructions to Competitors for the preliminary competition must be sent in writing to the assessor, at 3, Verulam Buildings, Gray's Inn, W.C. 1, on or before June 6, and no questions will be replied to after that date.

**Qasr el 'Aini Hospital.**
Site shown in Black.

# DESIGN AND INDUSTRIES ASSOCIATION.

A recent meeting of the Design and Industries Associaton was held in the hall of the Art Workers' Guild, Queen-square, to discuss the subjects of "Hardware and Lighting." This useful Society sets out with remarkable modesty and good sense to encourage excellence of design and workmanship through the co-operation of designers, manufacturers, distributors, educationists, and the general public, and holds exhibitions and meetings in order to further this end. It has already a record of good work, and should exert a very valuable influence on the domestic life of the future, because it is practical in its approach and confines its efforts within the limits of the possible without too much talk about ideals and the "arts and crafts" jargon which preceded this more sensible endeavour. While recognising the influence and inspiration of handicrafts, the Design and Industries Association frankly accepts the position of machinery in manufacture. Its objects are mostly concerned with the things of common use, but it is on these things that the welfare of life largely depends, and it is out of the right manufacture of them that the foundations will be made on which a new value and inspiration for craftsmanship will raise itself, because beauty grows out of use. At the meeting to which we refer a paper was read by Mr. W. A. Young, in which he referred to the improvement to be seen in manufactures towards greater restraint and fitness for use in the things made. This was particularly noticeable, he said, at the recent Industrial Fair held in Birmingham. Aluminium hardware, the use of which was much extending, showed improvement both in shape and material. He raised the question of the convex shape of the ordinary saucepan, which was straight in aluminium vessels for reasons lying in the material. It did not seem clear why the convex shape was usual in the ordinary saucepan, unless to give a larger surface for heating. Various suggestions were offered during the discussion. We should expect the reason to be that of increased strength. Mr. Young referred to the difficulty of getting people to appreciate the simple shapes, and as long as that was so it made them more expensive, as, the demand being less, the cost was greater in manufacture. If the demand should grow for fitness and restraint in the things of common use, it would make them less expensive.

Mr. Thornton read a paper on the distribution of light, selection of fittings, eye-comfort, disposition of light, and the effect of light on objects. Technically speaking, illumination is the effect of light on objects expressed in candle power. Speaking of the absorption of light, he pointed out that yellow paper reflected back only 40 per cent. of the light, while unglazed paper reflected back 80 per cent. Pure white cardboard was the best for reflecting down the light. The papers were followed by a discussion, in which many joined, on the subject of closed stoves, gas stoves, &c., the designs of which came in for some criticism. Fenders and curbs were also considered.

The Secretary announced that the Design and Industries Association was furnishing completely two houses at the Welwyn Garden City—one an artisan's house and another for a professional man—as an example of the resources available for providing suitable, efficient, and becoming surroundings to the home, through the ordinary sources of manufacture and at a reasonable cost.

## The Architects' and Surveyors' Assistants' Professional Union.

The East Anglian Branch of the Architects' and Surveyors' Assistants' Professional Union has recently been in communication with the Librarian of the Norwich Public Library in connection with the provision of books of architectural interest. As a result several up-to-date books have now been added to the Library.

# ARCHITECTURAL SOCIETIES.

## DEVON AND EXETER ARCHITECTURAL SOCIETY.

### Annual Meeting.

THE annual meeting of the Devon and Exeter Architectural Society, which embraces the counties of Devon and Cornwall and is in alliance with the Royal Institute of British Architects, was held on April 2. The chair was occupied by the President, Mr. Anstis G. Bewes, A.R.I.B.A., (Plymouth), and amongst those present were Messrs. J. Crocker, F.R.I.B.A. (Exeter), and A. S. Parker, F.R.I.B.A. (Plymouth). Vice-Presidents; P. Morris, F.R.I.B.A.; O Ralling, M.S.A.; J. Bennett, Lic.R.I.B.A.; B. H. Palmer, Lic.R.I.B.A.; L. F. Toner, Lic.R.I.B.A. (Exeter); J. L. Fouracre, A.R.I.B.A.; C. Cheverton, M.S.A.; E. Coath Adams, M.S.A.; S. P. Shires, F.R.I.B.A.; Victor Prigg (Plymouth); E. Ellis (Exmouth); Allen J. Pinn, A.R.I.B.A. (Hon. Secretary); and A. H. Holman, A.R.I.B.A. (Assistant Hon. Secretary), (Exeter).

The annual report was presented and, together with the balance sheet, was received and adopted.

The President referred to the death of three of the members, Mr. John M. Pinn and Mr. Charles Cole, of Exeter, and Mr. E. H. Sedding, of Plymouth. The two former were Past-Presidents of the Society, and Mr. J. M. Pinn, who had reached the age of 83, was the oldest practising architect in Exeter.

The President then delivered his address, in the course of which he said it was impossible indeed to be long upon the Council without being struck with the multiplicity of questions affecting the profession which had to be dealt with, and which, in the absence of such a Society, would remain neglected, to the grave prejudice of those engaged in the practice of architecture. The importance of the Society was not to be gauged merely by any chronicle of striking events which might appear in an annual report. The one salient fact for which professional men who lived in these times ought to be profoundly thankful was that the Society existed, and was available in case of need for counsel and support, and engaged year in year out in safeguarding the interest of its members, in securing a high standard of professional conduct, and in resisting the encroachments both of the exploiter and the blackleg. He expressed the regret of the members of the Society that Mr. Allen Pinn was unable at present to see his way to resume the office of Honorary Secretary.

A cordial vote of thanks was proposed by Mr. J. Crocker to the President for his address and able conduct in the chair during the past year. This was seconded by Mr. J. L. Fouracre.

ELECTION OF OFFICERS.—The following officers were elected for the ensuing year:—

PRESIDENT: Mr. Anstis G. Bewes.

VICE-PRESIDENTS: Messrs. J. Crocker and A. S. Parker.

MEMBERS OF COUNCIL: Messrs. E. P. Shires, C. R. Corfield, J. L. Fouracre, J. Bennett, F. Jerman, and B. H. Palmer.

HON. TREASURER: Mr. S. Dobell.

HON. SECRETARY: Mr. A. R. Holman.

The newly-elected President proposed a hearty vote of thanks to the Hon. Secretary, Assistant Hon. Secretary, Hon. Treasurer, and Hon. Auditor, which was carried unanimously.

## EDINBURGH ARCHITECTURAL ASSOCIATION.

### Town Planning in the Middle Ages.

Mr. Frank Mears gave a lecture at a meeting of the Edinburgh Architectural Association held on March 24 in the College of Art, Edinburgh. Mr. W. T. Oldrieve presiding. Taking as his subject "Town Planning in the Middle Ages," Mr. Mears said towns were systematically planned in Western Europe during the twelfth and thirteenth centuries, and those of Scotland were no exception to the rule. The older burghs of Scotland showed beneath later alterations and encroachments evidence of an original setting out on most spacious and regular lines. All the earlier towns had features in common, and were not complete without common lands, mills, and in Scotland very frequently a port. In the later Middle Ages war and changes of occupation caused the building up of open spaces, and war especially helped to set up the tenement building tradition, which was the curse of Scottish city life to-day. The burghs in their earlier state could easily hold their own against any modern garden-city scheme so far attempted, since the house plots often had an area of a quarter of an acre. It was important that in modern reconstruction schemes this spacious original lay-out should be recognised, for only by working back in some degree to the old conditions could decaying areas be satisfactorily dealt with. The reconstruction of the real industrial slums would be a very much more difficult matter, the whole problem calling for co-operation between housing authorities and others in the working out of an adequate preliminary survey of the whole condition.

## NORTHERN ARCHITECTURAL ASSOCIATION.

### Annual Meeting.

The annual general meeting of the Northern Architectural Association was held at Newcastle on April 6. Mr. C. S. Errington, the retiring President, occupied the chair, supported by Mr. T. R. Milburn, the President-elect, and other officials of the Association.

The annual report for the 62nd session showed that during the past year there had been a slight increase in the membership of the Association. The total membership was now 185, comprising 72 members, 2 honorary members, 78 associates, and 33 students; as against 183 in 1920. The report gave a summary of the work accomplished during the session, and stated that protests had been made against the action of the Ministry of Health in introducing H.M. Office of Works into housing schemes in the district in place of architects already appointed for the work. A most gratifying response had been made by members of the association to the appeal launched by the University Colleges of Newcastle, and the committee hoped in the near future to forward a considerable sum to the Colleges.

The apathy of students with regard to the drawing competitions was commented upon at length by the Council in the report. It was regretted that there had been no entries either for the summer sketching and measured drawings competitions or for the winter design and essay prizes which had been instituted; and the lack of enthusiasm displayed by students in this direction was deplored. It was intimated that Mr. K. Glover had offered a special prize for sketching, and the Council expressed the hope that some competition would be shown during the coming session.

The opinion was expressed by the Council that all control and restriction on the building industry should be removed.

The thanks of the Association were due to Mr. John Robson, of Newcastle, for the presentation of five albums of photographs, &c., and to Mr. T. R Milburn (Vice-President) for the gift of a new long-focus lens for the lantern.

The President, in moving the adoption of the report, said the work of the Association was approaching what it was before the war. They must not, however, be content to let the matter rest there. They were aiming at something more than the pre-war standard, and must strive their uttermost to accomplish that aim. The motion was seconded by Mr. William Milburn, and the report was adopted.

A number of suggested variations of the rules were recommended by the Council and carried; and a resolution was adopted to increase the amounts of the annual subscriptions as follows: Members, £1 11s. 6d.; Associates, 15s. 9d.; Students, 7s. 6d.

Mr. Matthew Reed, of Colchester, was elected an Honorary Member of the Association.

### Election of Officers.

The following were declared duly elected to the respective offices for which they had been nominated:—

PRESIDENT.—Mr. T. R. Milburn, F.R.I.B.A. (Sunderland).

VICE-PRESIDENT.—Mr. W. T. Jones, F.R.I.B.A., F.S.A. (Durham).

HON. TREASURER.—Mr. J. T. Cackett, J.P., F.R.I.B.A. (Newcastle).

HON. LIBRARIAN.—Mr. F. N. Weightman, Lic.R.I.B.A.

HON. SECRETARY.—Mr. G. T. Brown, F.R.I.B.A., F.S.A.; ASSISTANT HON. SECRETARY.—Mr. G. H. Gray, A.R.I.B.A.

MEMBERS OF COUNCIL.—Messrs. P. L. Browne, C. I. Greenhow, Lic.R.I.B.A., N. E. Leeson, C. T. Marshall, Lic.R.I.B.A., L. W. Taylor.

ASSOCIATE MEMBERS OF COUNCIL.—Messrs. S. F. Bestow, A.R.I.B.A., G. E. Charleswood, A.R.I.B.A., T. Harrison, M.S.A.

HONORARY LOCAL SECRETARIES.—Sunderland: Mr. J. Hall, F.R.I.B.A.; Durham: Mr. W. T. Jones; South Shields: Mr. J. H. Morton, F.R.I.B.A.; Darlington: Mr. W. J. Moscrop, F.R.I.B.A.; Carlisle: Mr. G. D. Oliver, F.R.I.B.A.; Alnwick: Mr. G. Reavell, F.R.I.B.A.

# LONDON MONASTERIES AND CHURCHES.

A MEETING of the Royal Archæological Institute of Great Britain and Ireland was held on Wednesday last week in the apartments of the Society of Antiquaries, Burlington House, Piccadilly, when Mr. Andrew Oliver gave a lecture entitled "Notes on the Destroyed London Monasteries and Churches," with lantern illustrations. Mr. Oliver said London had been extremely unfortunate in losing so many ecclesiastical buildings through fire and other causes, and sixteen of the great monasteries fell in the time of Henry VIII. It was the only city in England where churches were pulled down to erect other buildings, or to make thoroughfares, owing to the land being more valuable than in other towns. The vast number of losses was emphasised by a drawing of old London made in 1760, measuring 6 ft. in length, on which the original positions of the lost buildings had been indicated. In the course of his remarks, the lecturer briefly mentioned a few of the great losses the city had sustained, amongst which were the important Monastic Priory of the Holy Trinity, Aldgate, founded by King Stephen, the Prior of which was an alderman of the City of London; the Nunnery of the Minories, of which only one bit now remained, forming the outer boundary of a garage, which was part of the property of the Holy Trinity; the Hospital of St. Katharine, founded by Queen Eleanor, pulled down a few years ago and taken to Regent's Park, where practically all the mediæval fittings may be seen, although some of the woodwork was preserved in houses in the precincts; St. Peter Benet Fink, pulled down when the present Royal Exchange was built; St. Mildred, Poultry, at the corner of Prince's-street, where the Bank now stands, pulled down and taken to the Midlands; Holy Trinity Church, Leadenhall, founded about the middle of the fifteenth century, and of which very little was known; St. Bartholomew's, founded in 1750, pulled down to erect the first part of the Bank of England; and St. Antholin, Watling-street, pulled down to build Queen Victoria-street.

The destruction of the City churches, he said, was a most important matter, which ought to be stopped, as it was impossible to replace them. In the last few years many churches had been destroyed and the number much reduced; now further demolitions were threatened, and if they were allowed to take place there would be very little of Wren's work left. Amongst other interesting slides was a general view of London in the time of Henry VIII, from a drawing by the late H. W. Brewer.*

* Illustrated in *The Builder* for January 7, 1888.

# THE INCREASE OF RENT ACT.

### Rent.

The case Mackworth *v.* Hellard (*The Builder*, December 31) has been carried to the Court of Appeal, but the decision of the court below was affirmed (*Weekly Notes*, March 12). The premises had been let to the defendant in 1916 at a monthly rent of £2 10s., or £30 a year, the landlord paying rates and taxes. The rateable value of the premises was £40. In 1919 the rates and taxes amounted to £31 18s., and the plaintiff (the owner of the premises) gave the defendant a month's notice to quit. The defendant refused to quit, and the plaintiff brought this action to recover possession, relying upon section 12, subsection 7 of the Increase of Rent Act. That section is as follows: "Where the rent payable in respect of any tenancy of any dwelling-house is less than two-thirds of the rateable value thereof this Act shall not apply to that rent or tenancy . . . and this Act shall apply in respect of such dwelling-house as if no such tenancy existed or ever had existed." The plaintiff contended that the word "rent" in this subsection meant the rent actually received after deducting rates and taxes, and that in this case the rent was therefore less than two-thirds of the rateable value. The Court of Appeal held that the "rent payable" meant the rent which the tenant had to pay and not the amount which the landlord got after paying rates and taxes.

A similar question was raised in the case Isaacs *v.* Tittlebaum (*The Builder*, March 26, 1920), but in connection with subsection (1) of section 12 in calculating what is the standard rent. It was contended in that case that the amount paid for rates and taxes by the landlord must be added to the rent, and with this addition the standard rent would be higher than to come within the limits of the Act then in force. The actual sum paid as rent by the tenant was in that case decided to be the "rent". That was also a decision of the Court of Appeal, and was really a double appeal, as it was hoped to upset a finding of a court of first instance to the same effect in the case Westminster and General Properties and Investment Co. *v.* Simmons (*The Builder*, August 15, 1919).

### [Standard Rent.

The case Glossop and Another *v.* Ashley (*Weekly Notes*, March 26) raised some points of interest. In August, 1911, the plaintiffs' predecessors in title had leased to a brewery company for five years at a rent of £130 per annum a public house which was not "tied." In October of the same year the brewery company had sub-let the premises to the defendant in this action at a rent of £40 per annum, but as a "tied" house, the defendant being compelled to purchase all liquors from the company. By a later agreement the rent was reduced to £24 per annum, and this was the rent in force for this tied house on August 3, 1914. After that the rent was further reduced to £15 per annum. In August, 1916, the lease of the brewery company having determined, the defendant became tenant of the plaintiffs at that rent (£15) and so continued until February, 1918, when a written agreement was entered into whereby the defendant became a quarterly tenant of the plaintiffs at a rent of £30 per annum. By that agreement the premises were only to be used as a public house, but apparently the "tie" had been removed when the lease of the brewery company had come to an end. On March 23, 1920, the plaintiffs gave the defendant notice to quit on June 24, at the same time intimating that if he held over the rent would be £130. They later claimed that to be the standard rent as on August 3, 1914. The defendant remained in possession, and tendered at the proper times the rent of £30.

The court held that the standard rent was that existing on August 3, 1914, which in the present case was £24, and that the court could not take into consideration the fact that that was the rent as of a "tied house" and add to that sum an amount which represented the larger sum which might have been payable had no "tie" existed.

So far, the decision is in accord with the cases cited above, namely, that it is only the actual rent paid which has to be regarded, and this was sufficient to dispose of the case; but there are other points in it which we find difficult to follow in the short report which may become clear when the extended report appears in the Law Reports, and we must revert to it again. The claim was not only for possession but also for a quarter's rent at the rate of £130 per annum, and, as we understand the case, the court held that as a statutory tenant holding over becomes liable to pay the permissible increases in rent under the Act only when the landlord in imposing the increase complies with the conditions precedent prescribed by the Act, this notice claiming rent at £130 was of no validity.

It may be noticed that in this case the rent was at one time actually below the standard rent, and on this point the judge is reported as having said that there was nothing in the Rent Restriction Acts to prohibit a landlord from raising to a standard rent a rent which previously had been below the standard rent, provided that due notice to determine the tenancy had first been given. This is a point which should be noted, as cases are rare where the rent is below the standard rent and a landlord might think he could bring it up to standard during the currency of the tenancy. The rateable value of the premises in this case was £24 10s., and therefore they came within the Act whatever the amount of rent.

### Landlords after War Service.

Section 5, subsection (1) (*f*), in laying down one of the exceptions where an order for possession can be made, provides that an order may be made where "The landlord became the landlord after service in any of His Majesty's Forces during the war and requires the house for his personal occupation and offers the tenant accommodation on reasonable terms in the same dwelling-house such accommodation being considered by the Court as reasonably sufficient in the circumstances."

The recent case, Kentish *v.* Sneath (*The Times*, March 24) is, we believe, one of the first decisions to be given under this subsection. It appears that in March, 1920, the father of the plaintiff had purchased a house subject to the tenancy of the defendant, which expired in the following September. The plaintiff had served with the Forces in the war from 1914 until 1919, when he was demobilised and came home in poor health and lived with his parents, who had sold their previous residence in December, 1919, and were then living in apartments. The purchase of the house in issue in this case had been made that the family might live together, and on the expiration of the defendant's lease of the house he was offered accommodation in the house, but he declined to accept it. Subsequently the house was conveyed to the plaintiff by his father, the conveyance being executed on January 6, 1921, and the plaintiff then, as an ex-Service man, brought this action for possession, and the County Court judge made an order for possession.

On the appeal it was argued that this arrangement was a mere device for evading the Act, but the Divisional Court held that it could not be said that the County Court judge had misdirected himself; for the plaintiff had become the owner of the property and he alone could recover the rent from the defendant, and he was liable for the landlord's obligations; he also required the house for his personal occupation, as being in poor health he desired to reside there with his father and mother, but the case might have been different if the intention had merely been that the father should obtain possession for his own occupation; the County Court judge, in exercising his discretion, was in a position to exercise his judgment as to the *bona fides* of the arrangement and to take these circumstances into account in holding as he had done that the plaintiff was the "landlord" within the meaning of the Act.

The facts of this case may have been exceptional, but as the Act lends itself to collusive arrangements no doubt the courts of first instance will require clear evidence that any transfer of the property is made with *bona fides* for good consideration, or at least according to the principles applied under the Finance Acts, so as really to divest the transferor of the property of any claim to it.

**War Memorial at Middlewich.** Messrs. Deane & Braddell, Architects.

[This memorial has been erected at Messrs. Brunner, Mond's Middlewich Works. The masonry was carried out to the architects' design by Messrs. John Mowlem & Co., and the bronze ornament and lettering by Mr. Esmond Burton, of 50A, Red Lion-street, W.C. 1.]

# SLATE HOUSES.

IN sending us the designs of slate houses illustrated on this page, Mr. C. I. V. Anderson, of 22, Greyhound-terrace, S.W. 16, says :—

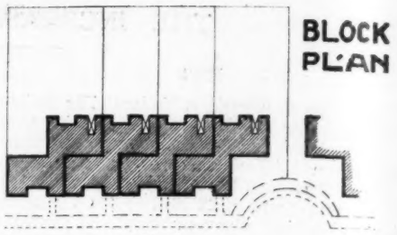
In the design of houses at the present time architects are faced with two great difficulties—effecting economy and satisfying the Ministry of Health. Already a hundred-and-one devices have been employed which prior to the war and the rising cost of labour and materials were never thought of, but in the majority of cases economy has been effected only at the cost of stability or design. I have, however, attempted to effect economy without sacrificing either of these two great essentials, and in the slate houses I claim to have attained some success.

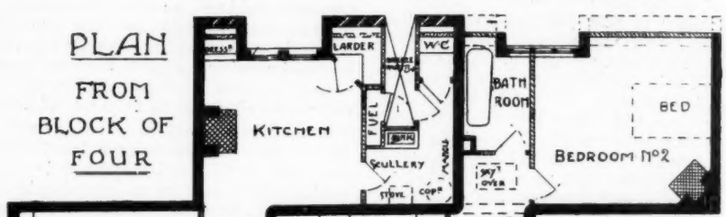
While slates are not materially lower in price than bricks they can be laid more speedily, thus effecting a saving in labour costs, while they cover a larger area in proportion without cement. Timber is, of course, a material item, but when it is considered that a large area of partition, with all its consequent plastering and papering, is saved in every house, that the floor joists are shorter and can therefore be of slighter scantling, and that there is literally no roof—the house being in the roof—the extra timber required is not formidably great. The amount and scantling of the ceiling joists of first-floor rooms is considerably less than that required in a brick-built house with a separate roof.

In this scheme I show a central lead gutter in the roof, but apart from this the use of guttering, facias, etc., and the constant trouble which they cause, is eliminated, as the rainwater is carried away by an earthenware channel bedded on concrete as shown in the cross section. External dilapidations consequent upon time and weather will be included under only one heading—slates—while the external dilapidations of the present-day building are numerous and expensive, such as rendering, underpinning, re-pointing, gutters and roofs. Scaffolding is required for nearly all these repairs, but in my design the use of a ladder will overcome many difficulties. Less rainwater gulleys are required in my design, and practically no stack pipes.

In order to avoid the expense of soakers, etc., which threatened to be a considerable item in a building of this class, the windows are built in like a reverse bay, and the return brickwork to the face of the building is stepped and cemented at its verges with the slates.

The houses are built in two halves so that the kitchen of one house is in the rear of the parlour of the adjoining house. This, of course, necessitates an additional party wall of 16 feet by 14 feet, which has been taken into consideration in arriving at an approximate comparative estimate, but considering the advantages gained in design and the fact that the simplicity of the roof is possible by reason of the wall (the rafters taking their bearing on it), and the fact that otherwise a tie between the front and the back mansard wall would be required, and that the central party wall also serves to carry the lead gutter, I think its existence is amply justified.



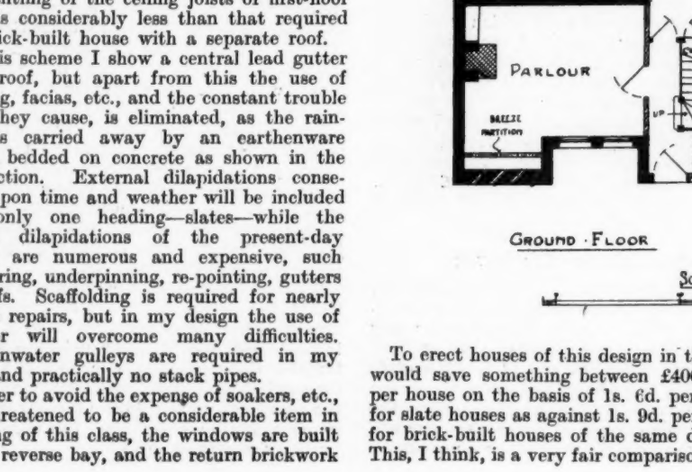

To erect houses of this design in the suburbs would save something between £400 and £450 per house on the basis of 1s. 6d. per foot cube for slate houses as against 1s. 9d. per foot cube for brick-built houses of the same dimensions. This, I think, is a very fair comparison for town erection, but in any district within easy reach of a slate quarry and timber yard the advantages of the slate house cannot be questioned. One of the features of a house of this kind is that it contains less cubic contents than a brick-built house of slightly smaller dimensions, for all possible space has been utilised.

The absence of a separate roof is the chief reason for this, and it is this fact, in addition to the reasons enumerated in this article, which greatly influences the amount saved. Apart from the actual saving in the initial cost of the building, the future saving in repairs should be considered.

This is not a standard design, inasmuch as it is capable of being juggled with, and bungalows specially built after this method could be economically and substantially built. Also such devices as *pisé-de-terre* and concrete walls can be used in conjunction therewith. The 9 in. piers and half-brick arches (indicated on the cross section) are connected with stout wire or iron bars and are intended to protect the lower part of the mansard wall from damage. Timber, of course, can be substituted for this, or the low fence may be done away with and the lower portion of the slate wall can be laid with a few courses of stout roofing tiles. All walls, other than dwarf walls and flues, can be dispensed with in another design of this method, and where slates and timber are plentiful such a course would be an advantage.

On the ground floor there is a breeze-block partition from floor to ceiling adjoining the mansard wall. The effect of this is to regulate the temperature while it gives added support to a short length of girder which supports the first floor and takes its bearings respectively on the party wall and the window breast. It also has the effect of making the room square. The area of slates from the dwarf wall to the first-floor level is on battens, but from the first floor to the level of the first-floor ceiling they are laid with felt, as there is no internal partition on this floor, these two small areas of wall not being used in a bedroom. The return of roof from front to back is battened only.

It is one of the requirements of the Ministry of Health that a bedroom shall be designed to take a bed, and this requirement was never



better carried out than in the bedrooms which result from this design, where the fire is in an ideal position (and away from the window and door) and the bed is near the fire.

The central return party wall to which I have already alluded can be substituted by partitions, and a r.s.j. can serve to support the rafters of the roof and the lead gutter. The dwarf wall, which should be built to a height of about 2 ft. from the ground, should be of 14 in. work, or, if built of *pisé-de-terre* (a course which I do not advise, considering the duties this stretch of wall has to perform), it should be built battering.

Much of the timbering can be dispensed with by the use of an angle-shape iron from ground to first floor, one side being perpendicular and taking the studding of internal partition, and the other taking the slope of the mansard wall and the battens for the slates. A tie in the manner of a base to this triangle should rest on the top of the dwarf wall, while the perpendicular side should extend inside to the floor, these to be used as principals at distances of about 3 ft. The length of rafter carrying the slates of front mansard wall can be built in three lengths.

If the backs of these houses face north or east no breeze partition need be built inside the larder (as shown on plan by dotted line), otherwise this is necessary by reason of regulating the temperature. The larder, and the w.c. on the other side of the open passage, should be ventilated from the open air.

The partition of the covered passage should be of sufficient thickness to prevent the kitchen from getting unduly cold or hot, but as this passage is protected from the weather a slab partition in sheltered places should suffice.

According to the locality, slate houses may only cost 1s. 3d. as against 1s. 9d. per foot cube for comparative brick-built houses. This will result in a saving of exactly one-half the cost of the house. The style of the house and the nature of the decorations added to the facilities or difficulties of the locality will greatly affect these prices, but, generally speaking, they may be taken as comparative, *i.e.*, where the cost per cubic foot of brickwork structures is 1s. 7d. the cost of slate structures should be only 1s. 4d.; on the other hand, in a slate and timber producing locality the prices per foot cube may be respectively 1s. 10d. for brickwork and 1s. 3d. for slate. Under these circumstances, a house of similar dimensions to that illustrated built of brickwork would cost approximately £1,400, and a slate house only £600.

A bungalow involves a large and heavy roof with correspondingly heavy timbers, guttering, slates, &c., and it is in such a structure that the economy possible by reason of slate construction is emphasised. The approximate cost per foot cube of brickwork for a bungalow is 1s. 6d., and the cost for slate is 1s. 9d., on which basis in a bungalow containing bed-sitting-room or parlour 12 ft. 6 in. by 12 ft. 6 in., kitchen 12 ft. by 12 ft. 6 in., bedroom 12 ft. by 12 ft. 6 in., scullery 6 ft. by 12 ft. 6 in., bathroom 5 ft. by 10 ft. 6 in., hall, and passage, the former would cost £800 and the latter £400.

The inventor reserves all rights of building under this method.

### Proposed Development of Paris.

A scheme for the creation of inland harbours at Paris, now under the consideration of the Improvements Committee of the Port of Paris, embodies, says *The Times*, a series of works for which a sum equivalent to £34,000,000 is to be provided. It is intended to deepen the River Seine between Bougival and Rouen to a depth of 14½ ft., and rebuild certain existing dams and bridges. The Port of Paris will consist of three large inland harbours: Gennevilliers, north of Paris, which will be the real maritime port of the city, and will maintain direct traffic with the sea; Bonneuil, on the Marne, which will control the upper Marne and the upper Seine; and Pontin, on the Ourcq canal, which will be linked up directly with the Canal du Nord. All three harbours will be connected by branch railways with the main systems. Docks will also be constructed in the moats of various fortifications surrounding Paris.

## PREMIUMS AND RENT RESTRICTION.

Under the heading "House-Hunters' Tax," *The Times* recently published a short article based on information received from leading auctioneers and house agents calling attention to the continued practice of charging premiums to prospective tenants. *The Times* observes that in this correspondence it is pointed out that landlords in the proper acceptance of the term—that is to say, freeholders and ground lessees—are not the only people to blame in the matter, but that there is a practice very prevalent at the moment of persons leasing a house or flat for a certain time and then disposing of it to a third party, asking for a higher rent and almost invariably for a premium. It is observed in the article that as the average tenant cannot hope to master the phraseology of the Act he cannot tell whether the premium he is asked to pay is legal or not, and thus it would be to the advantage of everybody if a sub-tenant were to be found who is strong-minded enough to test the legality of the whole system. We also note that there is a quotation from one of the letters in which the following passage occurs:—"There is nothing to prevent a tenant—holding under any short tenancy—obtaining a premium, and this is very prevalent." The tenants are not the only persons who find the phraseology of the Act difficult to master, for the courts have experienced the same difficulty and this measure has been characterised as the worst-drafted Act ever produced; thus no one can express a confident opinion on the meaning of the provisions it contains, but possibly it may be useful if we venture tentatively to tender some observations on some of the points raised in this article.

Two points may be cleared away at once. If the landlords properly understood to be such are demanding premiums, obviously the Act does apply to them, and the tenants have no one to blame but themselves if they pay them. Secondly, the rent cannot be raised by a tenant who sub-lets, for by section 1 of the Act (irrespective of any consideration of who raises it) the standard rent is fixed, and any increase, except a permitted increase, is rendered irrecoverable from the tenant, and by section 12, subsection (1) (*g*), "tenant" includes "sub-tenant."

The real difficulty arises in connection with the charging of premiums. Section 8, which deals with "restriction on premiums," at first sight would appear to apply to the cases referred to in the article quoted above, for it is not confined to "landlords" but uses the wide expression "person." It enacts: "A person shall not as a condition of the grant renewal or continuance of a tenancy or sub-tenancy of any dwelling-house to which this Act applies require the payment of any fine premium or other like sum or the giving of any pecuniary consideration in addition to the rent." This section was considered by a Divisional Court in the case Remington *v.* Larchin (*The Times*, March 16), but the Divisional Court was divided in opinion and expressed the hope that the matter would be carried to the Court of Appeal. In that case a tenant desired to be released from his tenancy by his landlord, and the landlord had assented to release him if he, the tenant, could find a suitable tenant. The tenant advertised the premises, and, without the knowledge of the landlord, exacted a premium from the tenant whom he had secured to take the premises, and who had been accepted by the landlord under a new tenancy. The county court judge had held that the premium taken by the outgoing from the incoming tenant was not recoverable under the Act of 1920 by the latter. The transaction had taken place before the Act of 1920 came into force, and section 2 of the Act of 1915 is differently worded from section 8 of the new Act, in that instead of using the word "person" throughout it enacted that the premium or fine should be recoverable "by the tenant by whom it was made from the landlord." Mr. Justice Bailhache held that the premium was recoverable, and that the decision of the county court judge was wrong, and he dwelt on the fact that the new Act had substituted the word "person" for the words "from the landlord," and said it was absurd to suppose that under the Act a tenant could profiteer while a landlord could not. Mr. Justice Shearman, in his judgment, as reported, seems to have been impressed by the fact that the court was only considering the retrospective force of the Act, but he read "person" as meaning "landlord," and upheld the judgment of the county court judge.

As the court was divided in opinion, the decision of the court below stood. So far as this case turns on the interpretation of the section, although it must be taken into consideration in connection with the observations we make below, pending a further appeal, it can hardly be considered as conclusive, and it is to be noted one of the judges was of opinion that the Act applied to prevent premiums being taken by tenants, but the point we are about to mention as to whether this transaction was a "grant" within the meaning of the section was not taken in this case.

But this section was also under consideration in the case Herring and Brooks *v.* Harris and Another (*The Builder*, February 25), and it was held in an action on a cheque, the main consideration for which was a premium charged on the assignment of the residue of a lease that the consideration was not illegal for the assignment was not a "grant" within the meaning of this section. This was a decision of a judge of the High Court sitting as a court of first instance, and so long as it remains unreversed it must be taken that a premium is not illegal under the Act on the assignment of the residue of a lease. Whether that was the intention or not of the legislature it is, of course, idle to speculate, but we may suggest that the Act could well be amended by inserting "or the assignment of a lease."

This decision does not, however, appear to cover all the cases mentioned in the above article, for the assignment of the residue of a lease creates no new tenancy but merely passes on an existing tenancy, and therefore it may be said that in such a case there is no "grant." The case Herring and Brooks *v.* Harris and Another is not yet reported at length in the Law Reports, so it cannot be considered in any detail, but it appears to us that this case may be distinguished where a tenant does not assign the whole interest in the lease but creates a new sub-tenancy and that it is at least arguable that this is a "grant of a sub-tenancy" within the meaning of section 8, and if that be the case, then the demanding of a premium would be illegal, rendering the grantor liable to the penalties imposed by the section, *viz.*, a fine not exceeding £100, and the premium would also be recoverable.

In the absence of any express decision only an opinion can be expressed upon this point, but we venture to think that the courts would take this view where a sub-tenancy is created. The whole spirit of the Act is to prohibit premiums from being exacted by anyone, and in this connection we may again refer to section 15, subsection (2), which we commented on in *The Builder* for March 25. That subsection only applies to "statutory tenants," holding over, but it enacts: "Any tenant retaining possession as aforesaid shall not as a condition of giving up possession ask or receive the payment of any sum or the giving of any other consideration by any person other than the landlord . ."

As we suggested in the article on March 25, the intention of this subsection appears to be to prevent statutory tenants from making bargains with persons to whom the landlord would give possession of the premises but for the holding over of the statutory tenant, and it appears to illustrate the intention of the whole legislation. We, therefore, submit that the Act intended to prevent both existing tenants and statutory tenants from exacting premiums, that this intention has been held not to be expressed where the whole lease is assigned, but that the Act may yet be held to apply where a sub-tenancy is created by a tenant.

# THE COST OF BUILDING IN SCOTLAND.

The Government Committee of Inquiry into the high cost of building working-class dwellings in Scotland held a further series of meetings in Edinburgh last week, Mr. G. W. Currie presiding. The following witnesses were examined :—

Mr. David Robinson, Scottish Timber Merchants' and Saw-Millers' Association.

Mr. Wink Wight, Scottish Employers' Council for the Clay Industries.

Mr. George Rome, Scottish National Building Trades' Federation.

Mr. J. Scott Inglis, Scottish Building Contractors' Association.

Mr. Peter Fyfe, Director of Housing, Glasgow.

Mr. W. E. Whyte, District Clerk, Middle Ward of Lanark.

Bailie Reid, Dundee Town Council.

Mr. James Thomson, City Architect, Dundee.

Mr. Robinson said he attributed the increased cost of timber to the increased wages and the elimination of Russia, the largest source of supply. There was at present a slump in timber, and prices had been considerably reduced of late. Stocks, however, could not be replaced at present prices. Very large profits were made in the trade during the war, but these profits were vanishing now. Very little profit was made by timber merchants in supplying timber for housing schemes, and of late timber was supplied for these schemes at a loss. The Scottish Board of Health specification for timber was at an absolute minimum. Timber used in house building represented from 10 to 12½ per cent. of the whole cost of the house. He advocated the use of spruce, of which there was at present large stocks in the country, but spruce was not so suitable as Baltic timber, and the saving that would be effected by its use would be only about £2 per house. He also advocated the placing of orders for housing schemes for shorter periods, as it was impossible for suppliers to estimate accurately the conditions of the trade over any lengthy period.

Mr. Rome said the cost of labour showed an increase over pre-war rates of 200 per cent. for skilled trades, and 300 per cent. for unskilled men. On materials the increases were :—joiners' materials, 250 per cent. ; bricks, over 100 per cent. ; lime, 250 per cent. ; sand, 300 per cent. ; cement, 225 per cent. ; plasterers' materials, 250 per cent. ; cartage rates, 350 per cent. Many of the increases were due to the existence of trade combinations or rings. Profits in building never exceeded 10 per cent. There were excellent prospects of a reduction in costs, especially if the reductions in wages that had been tentatively agreed upon were put into operation at an early date. Employers were anxious that the operatives should have a higher standard of living than they had in pre-war times, and the proposed reductions, which were based on a sliding scale relative to the cost of living, would ensure this higher standard. He advocated the removal of Government interference and Government controls, and the expansion of the subsidy period for housing schemes beyond the three-years' limit. The effect of the concentration of the Government's housing programme into three years had been to create artificial prices. He advocated the abolition of the Building Materials Supply Department, which, although it had done useful work in the past, had now the effect of stabilising prices at a high level. Building employers were definitely of opinion that the output of labour, that is, per man per hour, had diminished. There had of late, however, been a decided improvement in output, and this improvement was one of the principal factors that had brought about the recent fall in the cost of building. There should be a greater difference between the wages of labourers and the wages of journeymen. He advised the building of two-apartment houses where there was special need for them. The cost of building would continue to decrease if the cost of living fell, despite the continued high demand for houses. Building employers were not prepared to give detailed figures of profits.

Mr. Wink Wight said prices of bricks for housing schemes were fixed on a costings basis. Before the war little or no profit was made by brickmakers owing to the competition of collieries, which made bricks as a by-product and not on a profit-making basis, but the industry was now on a paying basis. The greater part of the cost of production of bricks was represented by wages and fuel. The average cost of wages in Scotland was from 35 to 50 per cent. of the total cost of production, and fuel from 25 to 35 per cent. The profit at present obtained probably averaged 15s. to 20s. per 1,000 bricks. A workman's dwelling-house, costing about £1,000, required about 20,000 bricks, at a cost of approximately £100. The profit on a house would therefore be approximately £20. If wages could be reduced immediately by 10s. per week, the figure which was at present the subject of negotiations by the Interim Industrial Reconstruction Committee, the cost of composition bricks would be reduced by 5s. per 1,000, and clay bricks by 6s. 8d. per 1,000. There would also be a reduction following upon any reduction which might take place in coal miners' wages. In England the shortage of bricks had been overcome, and in Scotland, whilst there was still a shortage, it was probable that it would also be overcome shortly. He had formed a very high opinion of the Department of Building Materials Supply, which had been of immense service in obtaining materials at low prices for housing schemes. If, however, there was a surplus of materials, the necessity for such a Department would no longer obtain. The Department of Building Materials Supply offered a bonus of 12s. 6d. to those brickmakers who would supply 75 per cent. of their supply for housing schemes, but even with the addition of this 12s. 6d., prices were still under market price. The majority of the brickworks in Scotland were working without up-to-date plant, the bulk of the bricks being produced by old-fashioned machinery. If the industry could get more capital there would be new machinery and probably cheaper bricks.

Mr. Scott Inglis said the increased costs were due to Government interference and control, high wages, shorter hours, high cost of material, fuel and transport, and lower output. Trade combinations had also the effect of keeping up prices. The concentration of the Government's housing programme into three years was also a factor in the high prices. The output of bricklayers had been reduced to one-third of the pre-war output. There had been a notable improvement in the output of labour during the last few months, and there was ample evidence that that improvement would continue. He advocated the abolition of the Department of Building Materials Supply. It was impossible to account wholly for the recent decrease in the cost of building, amounting in some cases to well over £200 per house. Materials had fallen in price, and contractors might be gambling for a further fall in materials and for the prospective fall in wages. It was, however, always difficult to explain the wide variations in tenders by different contractors. The building trade, although favourable to Government scrutiny of the accounts in the case of monopolies, would strongly resent any Government scrutiny of contractors' books. He advocated greater use of stone for housing schemes. There was an abundant supply of labour for stone construction, and although the initial cost of a stone house was greater than that of a brick house the cost of upkeep was less.

Mr. Peter Fyfe said the wretched conditions of housing in Glasgow still continued, and at the present rate of progress it would take 30 years to complete the 57,000 houses which were absolutely essential if these conditions were to be removed. At present there were 12,000 small houses in the city which, although in occupation, had been reported upon by the Medical Officer of Health as in an uninhabitable condition. An analysis of the increases in costs which had taken place since the middle of 1919 showed that labour, bricks, and slates amounted to over 71 per cent. of the increase since that date, and on these items the most careful and concentrated attention should be directed. Cement also was an important item, as it cost 10s. to 11s. more than it did a year and nine months ago. He considered a reduction in wages was now due. In regard to bricks, the purchase by the Glasgow Corporation of three brickworks recently would probably enable the Corporation to obtain bricks as 20s. per 1,000 under the Department of Building Materials Supply list price, and so ensure a reduction on bricks alone of about £20 on three-apartment houses. The Chief Surveyor of the Glasgow Housing Department estimated that on various types of houses they would effect very substantial savings by the use of concrete blocks, *e.g.*, for the three-apartment flats, £49 13s. 4d. per house, and for four-apartment flats £45 17s. 11d. per house. There was also a big saving in time and in skilled labour. Only one-fourth of the skilled labour that was required for brick work is required for building in concrete blocks. Glasgow Corporation was considering the purchase of foreign cement, as it was offered at very much lower prices than home material. The effect of the concentration of the Government's housing programme into three years had been to increase costs, and he advocated that the Government should extend the period to seven years, and should, after due inquiry, regulate the wages to be paid for house construction and also the profits to be allowed both to manufacturers and contractors. The officials of the Scottish Board of Health had been very helpful to the local authorities, and had assisted to reduce materially the cost of building ; but the Board might quite safely have permitted a good proportion of two-apartment houses with sculleries so long as they were strictly reserved for tenants with either no family or a very small family. He was in favour of local authorities undertaking building and road and street construction by direct labour so long as reliable and experienced management could be obtained. Any ambitious programme of reconstruction of uninhabitable houses and slum areas was impracticable in Glasgow at present, as there were no houses to accommodate the people who would be evicted from these undesirable houses. So long as this factor operated the Council must concentrate on new houses.

Mr. W. E. Whyte and Mr. P. C. Smith submitted evidence based on their experience of conditions in the Middle Ward District of Lanark, and on the experience of other District Committees throughout Scotland. Mr. Whyte said in the Middle Ward of Lanark ever since the housing scheme was launched serious difficulties had been experienced as regarded labour, materials and cost. Everything had been against expeditious and economical building, and there did not seem much prospect of substantial improvement. The house building scheme of the country was launched without due regard to or appreciation of the actual needs of the country in the matter of building materials and the available supplies of those materials. In such a situation the task of the Building Materials Supply Department was a hopeless one. No substantial progress could be made with the housing schemes of the country within the present subsidy period. With a clear knowledge of what additional time local authorities would have for the completion of schemes, and provided that this additional period was sufficiently long, progress would be made, and probably at decreased cost. The supply of the whole of the building materials of the country should be vested in a committee associated with the Board of Health, entrusted with plenary powers to commandeer and to allot under a system of priority certificates the whole building materials of the country. Such a committee would also fix fair prices with the manufacturers, and would be entrusted with the duty of making financial arrangements for

the extension of plant, &c. On the whole he considered that output per bricklayer was 25 per cent. less than in 1914. He considered the low outputs were due not only to slackness on the part of workmen but also to slackness on the part of employers, but probably the most important factor was the slowness with which materials came forward. When materials were plentiful the output per man was high; when materials were scarce the output per man was small. This was due to the natural desire of the workman not to overtake the supply of materials and so leave himself without employment, and such action was frequently taken with the connivance of the employer.

COUNCILLOR REID AND MR. JAMES THOMSON, of Dundee, said the completion of housing schemes in Dundee would take ten years. They were both of opinion that the principal causes of the high cost of building were the scarcity and consequent dearness of the principal materials —brick, stone, timber and metal—increased wages, increased freights, and decreased output. They considered that any slowing down on the part of labour was due to shortage of building materials. The housing conditions in Dundee were exceptionally bad; 17 per cent. of the houses were single-apartment houses, and in some cases ten people lived in one of these rooms, and in many there were to be found six, seven, and eight people confined to one room. There must be an extension of the subsidy period and full freedom given to the local authority to proceed with the maximum effort. Mr. Thomson thought that there was room in Dundee, owing to the large number of single women, for houses of two rooms, provided they were thoroughly equipped on a modern standard; but Councillor Reid was of the opinion that there were already more than sufficient two-apartment houses. It was not reconstruction that was required in Dundee; it was clearance and the building of new houses. Both witnesses considered that the existence of combinations in building materials and combinations of builders had had a serious effect on the increased costs. They both also advocated that work—more especially street work—could be carried out more cheaply by means of the employment of direct labour, provided that the staff of workmen was ordinary Corporation staff and not unemployed men, as in the case of relief works. Mr. Reid advocated the employment of direct labour on the whole of house building, and submitted figures to show that on architects' fees alone a saving would be made of £10 per house. Mr. Thomson suggested that, with a view to reducing cost, consideration should be given to the standardisation of factory-made doors, windows and finishings, floor and rough timbers, plumber work, and ironmongery goods and fireplaces. He thought also that more timber frame buildings might be erected with home timber.

### Crucifix as War Memorial.

Sir Francis Newbolt, K.C., Chancellor of the Diocese of Exeter, has delivered judgment on a petition of parishioners of St. Stephen's, Devonport, who asked for a faculty to remove a large wooden crucifix from the parish churchyard on the ground that it was illegally erected without a faculty, and that it was likely to be made the subject of superstitious use and reverence. The respondents were the vicar and acting churchwardens. In his judgment, Sir Francis Newbolt states it was undisputed that the crucifix was illegal at the time of its erection, and he could not grant a confirmatory faculty for its retention even if he decided that it was not illegal "in itself" if he came to the conclusion on the evidence that there was a danger of superstitious reverence or use or of a serious dissension in the parish. He suggested that a different war memorial should be put up; perhaps a granite cross with the date only, leaving the slab where it was, or a cross with a base large enough to show the names upon it. He decreed that the respondents should have one calendar month in which to effect the removal themselves.

## HOUSING AND TOWN-PLANNING NOTES.

### Manchester Town-Planning Scheme.

The Manchester town-planning scheme for the northern area of Manchester was the subject of an inquiry before Mr. George L. Pepler, an Inspector of the Ministry of Health, at Manchester last week.

The Deputy Town Clerk explained that the area under the scheme was 7,354 acres, of which 6,507 acres was within the city boundary, 566 acres in Chadderton, and 281 acres in Failsworth.

Alderman T. Turnbull (Chairman of the Manchester Town Planning Committee) said the present scheme took the place of previous schemes in which certain portions of the areas involved were excluded. The committee now thought it essential that all the land should be included in the scheme for the purposes of its adequate development. It was possible they would require three main roads out of Manchester into Failsworth, but it would be a considerable time before some of the land would be available for building upon.

Mr. J. Luke (City Surveyor) said Manchester wanted arterial communication for the betterment of both Failsworth and Manchester, and the community at large.

The only witness for the opposition was Mr. C. J. Lomax, civil engineer, who urged that Failsworth could be developed without this scheme, which would take many years to carry out, and would prove exceedingly costly.

The Inspector said everybody had admitted the desirability of these arterial roads being made, and if the application were granted by the Ministry it did not necessarily mean that the Failsworth Council would be saddled with expensive works.

### The Cost of House Building.

The Liskeard Town Council has declined to accept any of the tenders submitted for the erection of 32 houses in connection with its housing scheme, the lowest of which was £29,696, or £850 per house (parlour type).

### Housing in Mining Areas.

The weekly statement issued by the National Housing and Town-Planning Council on behalf of the housing committees of local authorities states that in the past few years the progressive opinion of enlightened proprietors and miners' leaders has been in the direction of organising the conditions of the industry so as to secure that miners shall not be segregated in special villages, but be provided with homes in towns in which there are workers in other industries and members of the general community, living under conditions of modern amenity, with full access to educational and other institutions. The coming of the petrol-driven motor vehicle and the electrically-propelled tramcar have rendered possible this desirable development. It is now agreed that a steady stream of miners can be taken in small motor-drawn vehicles from the town in which they live to the pit head. Given proper dressing-room accommodation it will be possible for them to change into their pit clothes and get their pit gear before descending the pit, and on ascending to the surface to take baths and change back to their ordinary clothes. Given a proper working time-table for the vehicles little time would be lost before the miners descended the pit. Dissatisfaction at any delay in travelling could be lessened by the provision of well-equipped modern canteens for the provision of food at reasonable prices. The provision of the bath at the pit head and the change back into ordinary clothing before going home would be appreciated not only by the miner himself but by the miner's wife. The dust of the pit would be left at the pit mouth and not carried to the home of the miner.

### WEEKLY HOUSING RETURN.

Progress of housing schemes up to April 1:—Schemes submitted, 11,488; approved, 9,032. Lay-out schemes submitted, 7,482; approved, 6,925. House-plans submitted, 294,724 houses; approved 275,868. Tenders submitted, 192,001 houses; approved, 176,242. Contracts have been signed for 155,599 houses.

Schemes dealt with during the fortnight ended April 1:—Schemes submitted, 17. Lay-outs submitted, 41; approved, 40. House-plans submitted, 731 houses; approved, 799. Tenders submitted, 2,290 houses; approved, 675. These schemes include the following:—

#### Applications.

SITES.

URBAN.—Crayford, 15.40 acres.

LAY-OUTS.

URBAN.—Cwmamman, Greetland, Heston and Isleworth, Perry Barr, Sheringham.

RURAL.—Barnstaple, Bedford, Brandon, Bridlington, Chard, Congleton, Dartford, Devizes, Easington, E. Dean and United Parishes, Holywell, Newton Abbot, Norham and Islandshires, Northallerton, Pocklington, Romsey, Ruthin, Selby, Thirsk, Welwyn, Weobley, Westbourne, Wycombe.

HOUSE-PLANS.

URBAN.—Cwmamman, 20 houses; Hornsey, 10; Keighley, 4; Perry Barr, 32; Scunthorpe and Frodlingham, 250; Sheringham, 6.

RURAL.—Bedford, 6 houses; Brandon, 12; Bridlington, 6; Chard, 4; Dartford, 24; Devizes, 4; E. Dean and United Parishes, 22; Holywell, 14; Llandaff and Dinas Powis, 16; Llanfyllin, 12; Newton Abbot, 4; Norham and Islandshires, 12; Northallerton, 13; Okehampton, 14; Pocklington, 18; Ruthin, 6; Steyning, E., 12; Weobley, 8; Westbourne, 40; Wetherby, 32; Wrexham, 72; Wycombe, 52.

#### Approvals.

SITES.

RURAL.—Houghton-le-Spring, 13 acres.

LAY-OUTS.

URBAN.—Cwmamman, Handsworth, Perry Barr, Rhondda, Sheringham.

RURAL.—Bedford, Brandon, Bridlington, Chard, Congleton, Cuckfield, Dartford, Devizes, Gloucester, Llanfyllin, Louth, Newton Abbot, Norham and Islandshires, Northallerton, Northleach, Ruthin, Selby, Sevenoaks, Tadcaster, Thirsk, Wakefield, Warrington, Weobley, Wycombe.

HOUSE-PLANS.

URBAN.—Altrincham, 44 houses; Cwmamman, 20; Keighley, 4; Perry Barr, 32; Scunthorpe and Frodingham, 250; Sheringham, 6.

RURAL.—Bedford, 8 houses; Brandon, 12; Bridlington, 6; Chard, 4; Congleton, 8; Cuckfield, 6; Dartford, 24; Devizes, 20; Doncaster, 93; Llandovery, 8; Llanfyllin, 6; Llanybyther, 8; Malmesbury, 28; Newton Abbot, 4; Norham and Islandshires, 12; Northallerton, 12; Okehampton, 14; Ruthin, 12; Sevenoaks, 18; Thirsk, 34; Tregaron, 8; Weobley, 8; Wetherby, 32; Wycombe, 52.

#### Tenders Approved.

URBAN.—Newton Abbot, 8 houses; Nottingham, 14; Reigate, 12; Scunthorpe and Frodingham, 250; Seaham Harbour, 4; West Bromwich, 70; Weston-super-Mare, 8.

RURAL.—Caxton and Arrington, 4 houses; Cheltenham, 2; Henstead, 6; Langport, 20; Malmesbury, 8.

COUNTY COUNCILS.—Essex, 3 houses; Warwickshire, 8.

### The King's Roll and Government Contracts.

Dr. Macnamara (Minister of Labour) stated in the House of Commons last week that the Government had decided that, save in exceptional circumstances, all firms contracting for the Government to whom the conditions of the King's Roll were applicable must be on the King's Roll. The rule will come into force on June 1.

# SOME PRACTICAL SUGGESTIONS ON HOUSING.

## BEVERLEY HOUSING SCHEME.

By W. W. Love ("Anglo-Australian Resident Engineer").

My practical experience of general building construction and public works contracts, at home and abroad, covers a period of upwards of thirty-five years. During the past six months I have had an opportunity of testing the qualifications of ex-Service men on the Beverley housing scheme, where all the component parts of the concrete houses, from the foundations to the roofing slabs, are pre-cast and erected by unskilled labour and ex-Service men.

A young ex-sergeant-major is my leading hand at pre-casting wall, floor and roofing slabs. The reinforcing steel rods for pillars, beams and trusses are prepared and assembled by young ex-Service men under my personal supervision; they have had no previous experience of building, and are doing well. Had it been possible to obtain ex-Service men partially trained as carpenters, plasterers, &c., in response to my application to the authorities, I could have built the houses without old-time mechanics. The average joiner is no more use for the mass production of concrete houses than an undertaker or picture-frame maker; I have to employ them because I cannot obtain partially-trained ex-Service men.

Many of those who are directly responsible for the erection of houses by modern methods, and in the main by unskilled and semi-skilled labour, would give preference to the employment of ex-Service men, but such men must have some qualification to make them equal to experienced builders' labourers. A good, experienced builders' labourer is worth a pound a week more to-day on concrete construction than an inexperienced man. I would suggest that, instead of paying a pound a week out-of-work dole to the unemployed ex-Service man, this sum should be paid towards their wages until they become proficient as builders' labourers, concrete workers, and the like—the builder to pay the balance to make their wages equal to the trade union rate. This would be an inducement to the builder to employ inexperienced men, and they would not be working below the recognised trade union rate.

We hear and read so much about the shortage of skilled labour in connection with housing that one would almost imagine there was an insurmountable difficulty in this direction. If it is expected that antiquated methods of building construction with the assistance of the National Federation of Building Trade Operatives and Building Guilds can, and will, produce the required houses, we are building castles in the air and doomed to disappointment. The solution lies in modern methods of construction and the introduction of machinery and unskilled labour into the building industry on a very extensive scale.

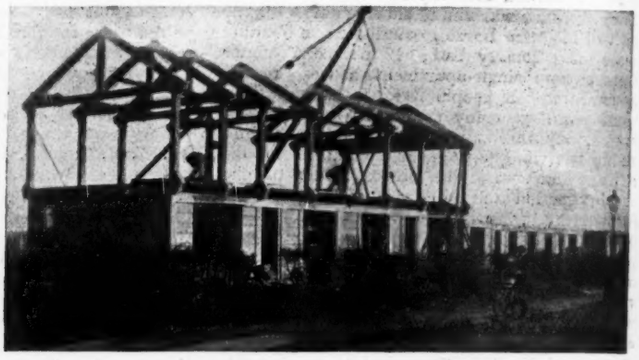
What is there in cottage construction when brickwork, tiling, slating, roofing in timber, timber carcassing, and all skilled labour in the shell of the building are eliminated? Windows and doors are machine made, plain 3 in. skirting, architraves, picture rail and dado rail are standardised and made by the mile. Steel is taking the place of wood for sashes, and doors are imported. The chief item is fixing. If, instead of making amateur joiners of the ex-Service trainees, the more useful and easily acquired work of hanging doors and sashes, cutting mitres, scribing skirting, and putting on locks and fastenings were taught at training centres (as it easily could be), we should soon have enough trained men for cottage building, and the men with more varied experience could be released for other building work.

Although carpentry and fixing is more easily acquired than the manufacture of joinery, and requires less skill, good carpenters and fixers have for many years been few and far between. The average carpenter in this country knows little of the value of that most useful tool, the figured square, by the use of which the lengths and bevels of rafters, &c., are so quickly and accurately obtained, and the science and art of carpentry mastered. This accounts for so many slow and indifferent carpenters, who find they are not worth their salt when they go to Australia and America, where value for money is expected.

The whole of the component parts of the houses at Beverley are standardised and pre-cast on the building site, and erected by unskilled labour and machinery. Already pillars are erected for 72 houses, foundations put in for 84 houses, walls to first floor for 20 houses, upper floors and roof trusses cast for 26 houses, a large number of wall, floor and roof slabs have been cast, drain connections to sewers laid for the whole of the 145 houses, and sites cleared; the whole of this work has been done by unskilled men. The sinkings in the foundation blocks to receive the pillars are 1 in. larger in diameter than the pillars, which are kept plumb by the insertion of hard-wood wedges to hold them in position for grouting.

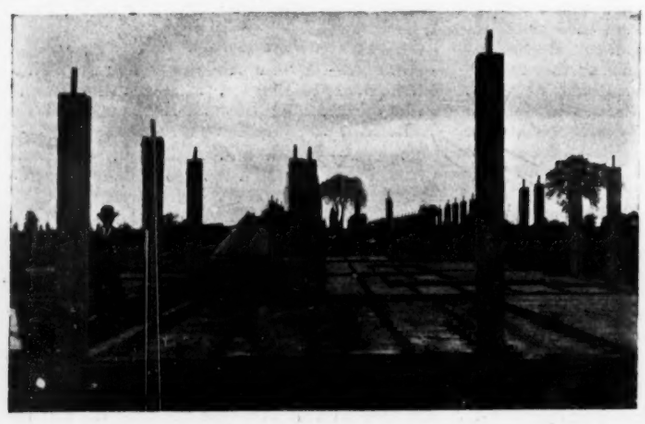
Walls.—The wall slabs, which reach from plinth beam to stringer beam, vary in width from 1 ft. to 3 ft. 6 in. to suit window and door openings, and are 2 in. in thickness. To support the wall slabs during erection, 7 in. by 3 in. timber wailings are bolted to the upper part of the pillars, one on either side; the wall slabs are inserted between the wailings and kept

Ground Floor Wall Slabs in course of Erection.

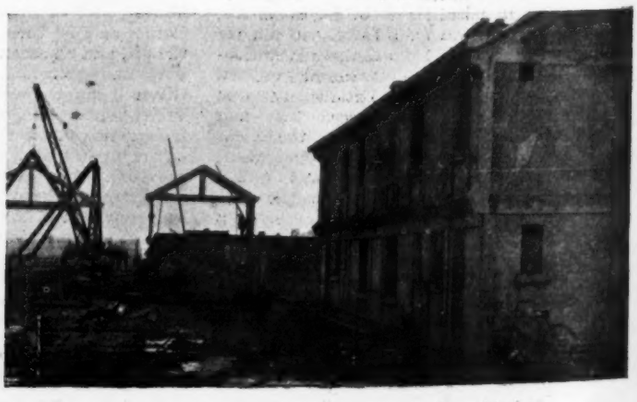


Upper Floor Trusses.

**Beverley Housing Scheme.**



Street of Houses ready for Flooring Battens and Stringer Beams.



Pair of Houses ready for Finishing.

**Beverley Housing Scheme.**

plumb by wedges between the slabs and wallings. The staple-like wire links which project from the edges of pillars and slabs are laced transversely with 26 gauge by ¾ in. hoop-iron, and the joints made good with composition. The edges of pillars and slabs are cast with "V" joints.

Stringer-Beams.—The stringer beams are cast *in situ*, with cogged joints at truss spacings. A 2 in. by 2 in. steel angle projects from the upper end of pillars to form a connection with the stringer beam.

Trusses.—The trusses, which form the complete carcase of the upper floor and roof, are pre-cast in tiers. They weigh approximately 3 tons each, and are erected by a 4 ton portable hand crane with a 40 ft. jib. Since the men have got used to the work trusses have been slung, hoisted and fixed in position in 1½ hours; with a power crane, trusses could be erected in half-an-hour.

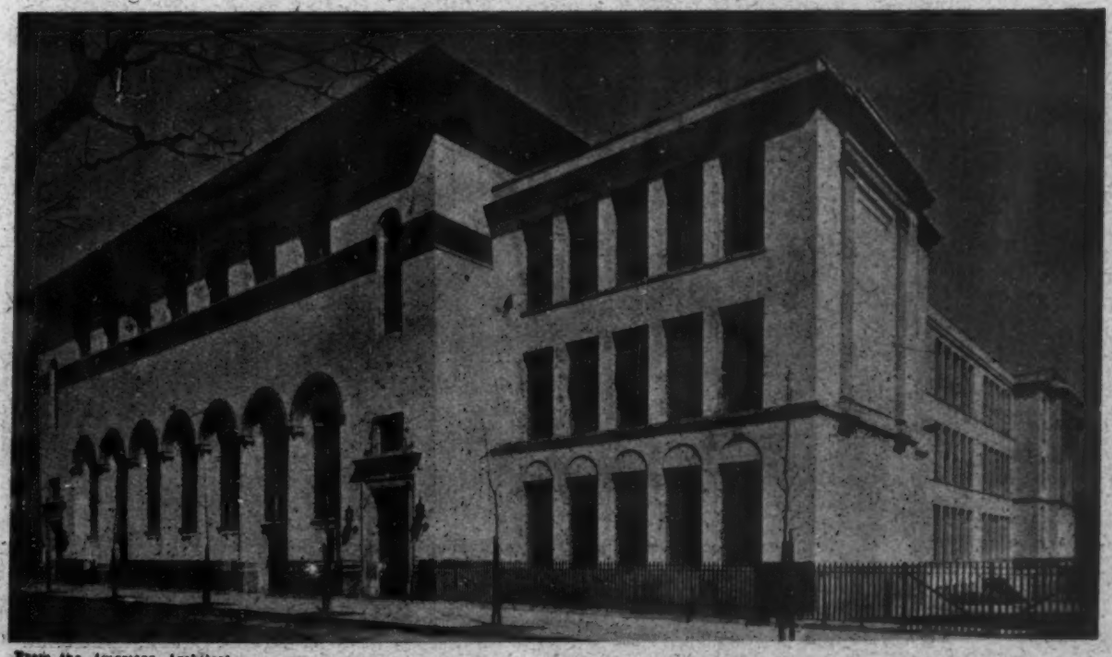
The ceiling of the ground floor consists of pre-cast slabs 3 in. thick and approximately 8 ft. in length; they reach from centre to centre of the truss floor beams. These slabs are cast in frames. The battens which form the first-floor joists are 3 in. by 1½ in., and are cut to length; stout wire nails 3½ in. in length are driven 1½ in. into the battens, leaving 2 in. of the nails standing above the battens. The battens are placed in the casting frames and suitably spaced; sand is filled in between the battens, over which the concrete is placed to form the slab, the head and 2 in. of the nails being embedded into the slab. When matured, the slabs are reversed, the battens standing above the surface of the slabs and firmly secured to them by the inverted nails.

Roof Slabs.—The roof slabs are 2½ in. in thickness, cast with a roll and 3 in. lap joint. In length they reach from centre to centre of the trusses and are 3 ft. in width. The eaves range of slabs are cast with lower edge turned up to form a roof gutter.

The whole carcase of the building is cast and erected by unskilled men, and no tiling, slating, soakers or flashings are used; there is no timber whatever in the roof, which is as durable as the walls and improves with age. The houses may be of any design; the upper floor may over-hang the lower story, or be set back if desired, and any colour or finish can be given to the exterior. There is no need to tar or cement-render the flank walls to keep out the damp, as is frequently seen with brick houses. The interior being lined with porous slabs and the exterior with impervious slabs, with a cavity between them, there is no condensation or sweating. Once a good concrete house, always a good concrete house. Of what other building material can such a statement be truthfully made?

From the *American Architect*.

**Moses Bigelow School, Newark, U.S.A.** Mr. E. F. Guilbert, Architect



From the *American Architect*.

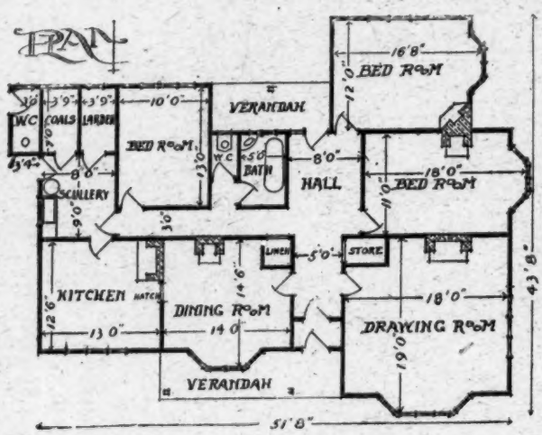
**Moses Bigelow School, Newark, U.S.A.** Mr. E. F. Guilbert, Architect.

## NEW INVENTIONS.

### Bungalow Construction.

The bungalow illustrated on this page has been erected on the "Doric" system by the Modern Building Co., of Central Chambers, North-street Quadrant, Brighton.

The construction is as follows:—The foundations are of cement concrete with a concrete bed over the site, upon which is built a base brick wall to the floor level. Dampcourses are laid, and a 4 in. by 2 in. mortised and tenoned timber carcass superstructure is erected thereon. The exterior face of the walls




is formed with "Doric" patent weatherproof rough-cast building sheets, and the joints weathered with half-timber bands treated with wood preserving stain. Internally the walls are lined with "Doric" asbestos-cement sheets, panelled out with stained overlay moulded fillets, and the panels papered or distempered in the various rooms, the bathroom, &c., are enamelled and the ceilings are similarly treated. The chimney stacks are built in brickwork, and the roof covered with sand-faced clay tiles.

The chief feature of the construction is the "Doric" building sheets forming the external face of the walls. These sheets are of British invention, and are formed of Portland cement and asbestos reinforced with netting, coated with an imperishable bitumastic composition, and the face finished with washed pebble rough-cast. These sheets ensure a dry air cavity which completely insulates the outer and inner atmospheres, thus maintaining a more equable internal temperature. The rough-cast surface of the sheet gives half-timbered and stucco effects.

This class of building is claimed to be speedy and economical in erection; the sheets are strong, fireproof, and non-conductive of heat and cold. We are informed that a number of these bungalows have been erected in various localities with complete success. The "Doric" building sheets have been approved by the Ministry of Health, and can be obtained in standard sizes and various grades of rough-cast (washed pebble, course, and marble), which can be employed singly or together in effective contrast. The sheets are easily cut and economically handled in construction.

The "Doric" patent system of concrete construction, as approved by the Ministry of Health for housing schemes, is a form of solid monolithic concrete construction in which the "Doric" sheets and asbestos cement sheets are employed as the exterior and interior finished faces of the wall, and at the same time act as the moulds into which the concrete is poured. The two planes of the walls are temporarily held in position by a framework of special stretchers and ties which become embedded in the wall and form the fixings for the skirting, picture rail, &c. The walls being entirely covered with the sheeting are dry and absorbent on the interior, preventing condensation, and, further, the concrete filling is protected from the disintegrating action of frost.

Other advantages claimed for the system are that by a method of fixing the floor joists a perfect tying and bonding of the walls is established throughout the entire building, giving great strength and durability, and that as the weight of the walls is carried by the whole thickness of the walls instead of an inner wall only there is no risk of uneven settlement owing to subsidence. No plaster is used, and there is no risk of smoky chimneys caused by the displacement of bricks, as the flues are constructed with pipes set in solid concrete.

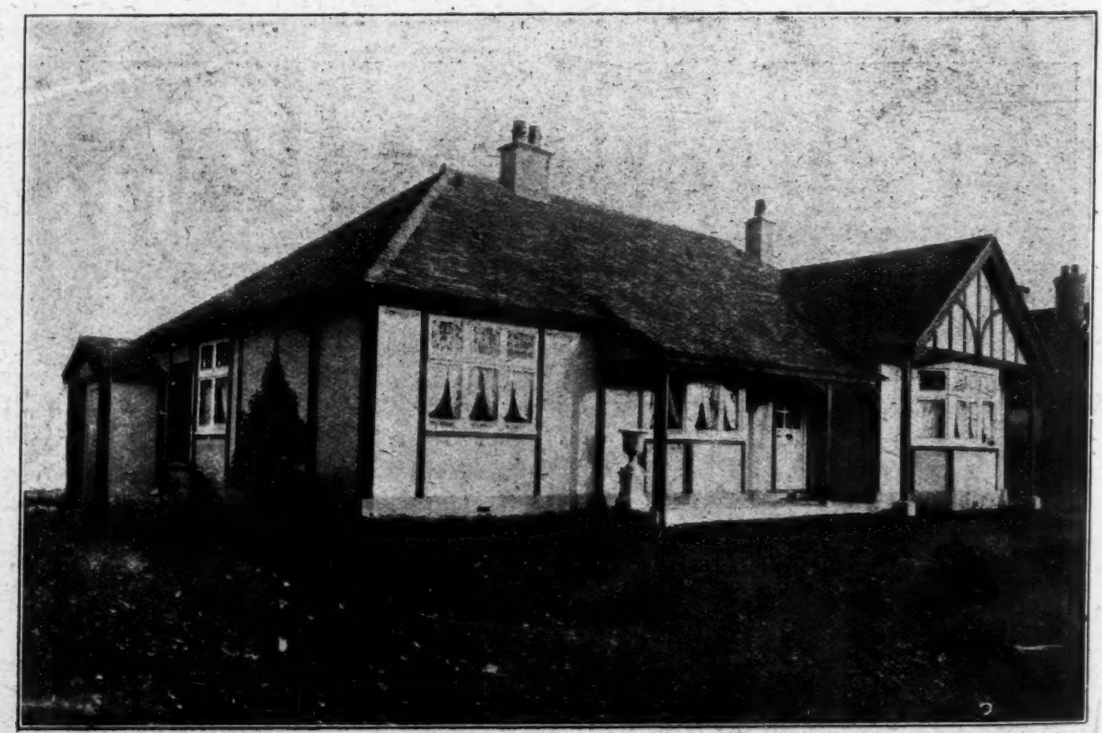
The Company has erected an exhibition pair of workmen's cottages at Brighton, which are open for inspection, and licences may be had to use the system.

### The Building Guilds.

A Building Guild branch has been established at Gateshead, which has expressed its willingness to compete in the open market, to pay trade union rates of wages, and undertake all classes of building and repair work. The Gateshead Town Council has decided that when estimates are being sought for the erection of future houses an invitation should be extended to the Building Guild to submit tenders.

### Co-Partnership Exhibition.

An exhibition is announced to take place at the Crystal Palace, from September 1 to October 22, with the object of illustrating the progress made in developing co-partnership and profit-sharing schemes and other means of promoting industrial peace. It is anticipated that the congress and various conferences to be held in connection with the exhibition will result in lasting benefit to British industry.



**Bungalow Built on the "Doric" System.**

# THE BUILDING TRADE.

## A CONTRAST BETWEEN ENGLISH AND AMERICAN METHODS OF BUILDING.—III.

By C. L. Morgan, A.R.I.B.A.

*(Sometime School Architect, City of Vancouver).*

### Organisation.

The telephone as an aid to business has been developed in America to an extent little understood in this country. One of the first things to be done on the site of a new building is to install a telephone, and thus bring the site within easy access of the city. The site of the new building may be, say, three miles or so from the centre of the city, but the work of installing the telephone, and thus placing the work within easy reach of everyone, is only the work of a few hours—whilst the cost of a whole line service in Vancouver in 1914 was $3, or about 12s. 6d. per month! It is said that "the western man never sleeps." Well, he certainly never allows flies to settle on him or on anyone else connected with his business. After all, in a country where high wages are paid, one has of necessity constantly to apply oneself to questions of self-preservation, and yet normal working hours are not long and there is ample time for leisure.

As regards the great part played in organisation by the efforts of the office staff, we have little, I think, to learn from America in this respect. The chief point here is the time spent in duplicating and purely routine work, which in America is performed by mechanical means.

In this country the building industry is organised in a manner second to none, America included, and vastly more facilities exist at our disposal for the speedy output of work; whilst in the matter of training, and the building tradition of centuries, our operatives stand in a pre-eminent position with regard to their work. The need for greater output is, however, a serious question for the operatives, as much ground has undoubtedly been lost here since the Armistice.

The cost plus 10 per cent. profit is the usual form of contract obtaining in America; but with the important exception that the contractor is given a bonus if the building is completed within a certain stipulated period of time, and in some cases a further bonus is added for each further period saved in erection. This system of payment by results, judged as a means to the desired end, seems to me to be a good one, and one, moreover, which is justified by results. It is, I am aware, open to abuses, but on the whole has been found to work in America, and as an experiment would, I think, if tried in this country help at all events to ameliorate some of the abnormal conditions prevailing to-day. With the aid of the quantity surveyor, and the return to competitive tendering, with the addition of the system of the payment of a bonus to the contractor for completion within a stipulated period of time, and the working out of a system whereby the whole of the operatives receive a fair share of the bonus paid to the contractor, a speeding up of output should result and enable us once more to lead.

The quantity surveyor is little known, and the useful work he performs is still less understood, in America. If he were the institution there that he is in this country, one is led to wonder what the American contractor might have in store for us. As one who has spent a considerable period of time in America and has travelled right through the American continent from the Atlantic to the Pacific and back again, and visited works under construction in many of the large, and also some of the smaller, cities and towns there and earned a living as an architect during a period of a year-and-a-half, I am confident that we can learn much from American methods of handling work and obtaining results.

I venture to think that many of the problems which have been successfully met and solved in such world centres as, say, New York, or Montreal in Canada, have a direct bearing on the problems of the development of some of the central areas of London, which must be dealt with during the coming years; and whatever may be our views as to "skyscrapers" on this side, it seems certain that if modern London (on both sides of her river front and on sites facing her more open spaces) is to grow in a dignified and orderly manner it must be by a more economic use of her ground values, and therefore by a new Building Act allowing higher buildings to be erected.

In conclusion, I wish our contractors and others interested in the question would take a month's holiday and spend it in a trip across the Atlantic and study the American and Canadian methods at first hand. I am sure they would find much to interest and help them by so doing; and incidentally it would help to bring about a better understanding between two great English-speaking nations.

## NAVVIES' AND LABOURERS' WAGES.

A working-rule agreement for the public works and constructional industry has been unanimously adopted by the Civil Engineering Construction Conciliation Board for Great Britain, by which the rates of pay for workmen engaged on works of civil engineering construction shall be determined by scale rates of pay dependent on the Board of Trade index figures of "Cost of Living—all items" as published monthly in the *Labour Gazette*. The new rules came into force on March 29.

Works of civil engineering construction are now grouped under four classes for the purpose of scale rates, viz., County of London, Class I, Class II and Class III, according to the general economic conditions applicable to the district in which the work is situated. The class to which any particular works belongs is, in the first instance, to be determined by Sub-Committees of the Board as may be constituted by the Board for that purpose. Upon any Sub-Committee failing to agree, or upon either an employer or union of workmen affected being dissatisfied with its decision, the matter will be referred to the Board for final determination, but pending such reference to the Board the decision of the Sub-Committee is to be put into effect.

Navvies and labourers engaged on works in the County of London are now paid a rate of 10½d. per hour, together with ½d. per hour for every 7½ points, or part thereof, above zero in the index figure.

Navvies and labourers engaged on Class I works are paid a rate of 10d. per hour, together with ½d. per hour for every 7½ points, or part thereof, above zero in the index figure.

Navvies and labourers engaged on Class II works are paid a rate of 9d. per hour, together with ½d. per hour for every 7½ points, or part thereof, above zero in the index figure.

Navvies and labourers engaged on Class III works are paid a rate of 8d. per hour, together with ½d. per hour for every 7½ points, or part thereof, above zero in the index figure.

These rates are subject to a provision that either employers or unions of workmen may refer to the Board for special rating cases in which the normal rates of pay of the district vary substantially from the rates of wages provided.

In districts where the rates of pay for navvies and labourers were higher than the above scale rates the following adjustments of rates of pay were applied before the scale rate was adopted, viz.:—

(*a*) In districts where the rate was 2s. 1d. per hour there was an "initial reduction" of 3d. In districts where the rate was 2s., 1s. 11d., or 1s. 10d. per hour there was an "initial reduction" of 2d. In districts where the rate was 1s. 9d. per hour there was an "initial reduction" of 1d. The "initial reduction" came into operation from the first pay day after March 29.

Further reductions, if required, to reach the scale rate are to be made at the rate of 1d. per hour at the expiration of each subsequent period of four weeks from the first pay day after March 29 until the scale rate is reached. After the scale rate has been reached modifications of rates due to the alteration of the index figure are to be effected on the first pay day after the monthly publication of the index figure.

The rate of pay to other classes of workmen are determined by an addition to the rate for navvies and labourers of sums varying between 8d. and ½d. per hour for various tradesmen, irrespective of any bonus agreed between employer and employed.

The working hours for the industry are generally to be:—For one-third of the year (winter months), 44½ hours; for two-thirds of the year (summer months), 49½ hours; an average of 48 hours over the whole year.

A register of public works men is to be kept by and under the control of the Board, with a view to employing and providing with continuous employment, as far as possible, men who are in the habit of engaging themselves to, and following, civil engineering and public works contractors.

The agreement is to continue in force and be binding upon all parties to the Conciliation Board until the expiration of six months' notice.

### A Builder's Estate.

The late Mr. Charles Boddy, of Didsbury, Manchester, builder and contractor, left estate valued at £27,162.

### Obituary.

The death has occurred of Mr. James L. Bisset, builder, of Musselburgh.

The death has taken place at Bridge of Allan of Mr. James Campbell, builder, in his 83rd year.

The death has occurred at Benton of Mr. John Allinson, a partner in the firm of Messrs. Allinson & Sons, Gateshead, and a past-president of the Institute of Plumbers.

### New Zealand Loans for Public Works.

Orders in Council appeared in the *New Zealand Gazette* of January 13 and 20, and February 3, giving consent to the raising of a number of loans, including: (1) £81,600 by the Invercargill Borough Council for tramway, and street improvement, waterworks, electricity, &c. (2) £125,000 by the Tauranga Harbour Board for the improvement and development of the harbour. (3) £3,000 by the Franklin County Council for purchasing road-making machinery and plant. (4) £2,500 by the Whakatane Borough Council for the same purpose. (5) £110,000 by the Hamilton Borough Council for drainage works. The *Gazette* for January 13 contains notifications that certain proposals to raise loans had been carried by polls of ratepayers, among them being: (1) £98,000 by the Thames Borough Council for sanitary works, and £70,350 for street improvements. (2) £13,000 by the Avondale Road Board for sewage works, and £14,000 for waterworks. (3) £129,500 by the Stratford Borough Council for drainage, waterworks, street improvements, &c. (4) £40,000 by the Rangitikei County Council for road and bridge making, and provision of necessary plant and machinery. (5) £30,000 by the Waimea County Council for similar purposes.

# SCIENCE APPLIED TO BUILDING PROBLEMS.

## IRON AND STEEL.

The seventh lecture of the series dealing with "Science Applied to Building Problems" was given at the Northern Polytechnic Institute recently by Mr. R. R. Butler, B.Sc., A.I.C., F.C.S., and dealt with the subject of iron and steel, both theoretically and practically.

The lecturer described the production of the crude pig iron, or cast iron, from the naturally occurring minerals, such as red hematite ($Fe_2O_3$), brown hæmatite ($Fe_2O_3 . 3H_2O$), and the carbonate $FeCO_3$. In outline, he said, the process is one of reduction, a material being mixed with the ore capable of combining with the oxygen contained in it, thereby leaving the crude iron behind. In diagrammatic form the process is as follows:—

Crude ore, roasted to remove volatile $CO_2$, $SO_2$, $H_2O$, &c.
mixed with coke and limestone
Blast furnace
Pig or cast iron

| | |
|---|---|
| Bessemer or Siemens Martin Process, to remove impurities — | Puddling furnace to remove impurities, producing *Wrought iron* |
| Addition of known Spiegeleisen composition | Heated with charcoal |
| *Ingot steel* | *Blister steel* |
| | Heated in crucibles |
| Market | Cast steel |
| | Market |

There are thus two possible methods of obtaining the steel of relatively high tensile strength used in structural work. In the one, the excess carbon is removed from crude pig iron, and in the other almost pure iron (wrought iron) is converted into steel by the addition of carbon.

Typical analyses of these three grades of iron are:—

| | Cast Iron. | Steel. | Wrought Iron. |
|---|---|---|---|
| Carbon .. | 3·81% | 0·65% | 0·10% |
| Silicon .. | 1·68% | 0·07 | 0·05% |
| Phosphorous | 0·70% | 0·03% | 0·15% |
| Sulphur .. | 0·60% | 0·02% | 0·05% |
| Manganese .. | 0·41% | 0·40% | 0·07% |
| Iron .. | 92·80% | 98·83% | 99·58% |
| | 100·00% | 100·00% | 100·00% |

It is readily seen from the above analyses that steel occupies an intermediate position between cast iron and wrought iron, from the point of view of purity. The lecturer exhibited some specimens of pig iron, obtained direct from the blast furnace. White pig iron contains carbon in a state of combination with the iron, while in grey pig iron the carbon exists in a free state in the mass, as graphite.

In general, the hardness of a steel is closely related to the carbon content, and the relations between the two are shown in the accompanying table. The percentage of carbon in the steel in each case is an approximate one.

| Use | Carbon Content % |
|---|---|
| Mild Steel (Boiler Plates) .. | 0·20 |
| Structural Steel .. .. .. | 0·25—0·4 |
| Rails .. .. .. .. | 0·45 |
| Springs .. .. .. .. | 0·70 |
| Stonemason's Tools .. .. | 0·9 |
| Chisels .. .. .. .. | 1·0 |
| Cutlery .. .. .. .. | 1·1 |
| Lathe Tools, Reamers .. .. | 1·2 |
| Surgical Instruments .. .. | 1·3 |

When a mass of glowing steel is allowed to cool slowly the colour gradually becomes less brilliant until a temperature is reached—known as the recalescence point—at which the dull red glow of the metal temporarily increases in brightness. The recalescence point for an ordinary structural steel occurs at about 690 deg. C. The hardening and tempering of steel are intimately connected with this temperature. A steel at high temperatures contains carbon in a state of solution. On slowly cooling, a temperature is reached at which the solid solution decomposes into (*a*) ferrite (iron containing little, if any, carbon), and (*b*) cementite (carbide of iron, $Fe_3C$). Heat is developed as a result of this change in the structure of the steel, and as a result recalescence occurs.

The process of "quenching" a steel for hardening purposes consists, therefore, in heating the steel to a temperature above the recalescence point (690 deg. C.), so that the carbon in the metal is in a state of solid solution. On suddenly quenching with (say) cold water, the heated metal is cooled so rapidly in the region of 690 deg. C., that the solid solution is prevented from breaking up, and the ferrite and cementite have no opportunity of forming. This is the basis of the Sandberg process for hardening tram-rails *in situ* by the application of an oxy-acetylene flame to the rail followed by immediate quenching. The hardness of the quenched steel can then be reduced, if desired, by the process of tempering. The formation of ferrite and cementite has been prevented by rapid cooling across the recalescence temperature. Tempering is the heating of this "supersaturated" solution to a temperature below that of recalescence, thereby allowing a partial change to occur, with the production of a small proportion of ferrite and cementite. The hardness and brittleness of the quenched steel are thereby diminished.

The lecturer demonstrated the absorption of the oxygen in the atmosphere during the rusting of iron, and in this connection stated that lime prevents the process of rusting. Ferro-concrete structures, if properly designed, should be very resistant to such corrosion, due to the presence of the lime. No such damage need occur in a carefully-constructed ferro-concrete building as has occurred in St. Paul's Cathedral, whose 32,000-ton dome has been lifted nearly an inch above its original position by the rusting and corrosion of the steel structure below.

Referring to current practice in the oxy-acetylene welding of cast iron and mild steel, the lecturer showed the necessity for suitable filling rods. In the case of cast iron, the ferrosilicon filling rod contains approximately 3·5 per cent. silicon, about one-half of which is oxidised away due to the high temperatures involved. In addition, a flux containing mainly sodium carbonate and sodium bicarbonate in equal quantities is used to form a protective layer on the surface of the molten metal, thereby preventing oxidation of the metal.

Crude acetylene, as produced by the ordinary generator, frequently contains as much as 1·7 per cent. of sulphuretted hydrogen. The gas should, therefore, be purified before use in the welding process, as impure gas invariably introduces sulphur into the weld. In the case of mild steel, as little as 0·08 per cent. sulphur is injurious, tending to make the metal brittle when hot. Similarly, phosphorus in excess makes the steel brittle, and manganese if in excess of 1 per cent. tends to produce undesirable hardness.

In conclusion the lecturer prepared a quantity of molten iron by the Thermit process, in which an intimate mixture of ferric oxide and powdered aluminium is ignited by means of magnesium ribbon, intense heat being produced.

The reaction which occurs is represented by the equation—

$$Fe_2O_3 + 2Al \rightarrow Al_2O_3 + 2Fe$$

The white hot metal sinks to the bottom of the receptacle, and in the case of rail-welding union of the two lengths of metal is accomplished.

# CLOSING ORDERS, TENANCIES, AND THE RENT ACT.

Some very important points were raised in a recent case in the High Court, Blake *v.* Smith (*The Times*, January 22 and March 15), but as at present the legal points are not fully reported, and the Court, in giving judgment, described the case as one in which a judge of first instance should be careful not to decide more than was strictly necessary, we must defer any detailed consideration of it until it is reported fully.

It appears that the main point for decision was the effect which a closing order made on the ground that a house was unfit for habitation had on an existing tenancy, and the judge, in giving judgment, commented upon the fact that in the legislation giving powers to close houses which are unfit for human habitation the previously existing relationship of landlord and tenant was not dealt with by any provision. It appears that the cottage in question in this case had in 1919 been purchased by the plaintiff, but at the time of the purchase a weekly tenant was in possession. The contract for sale was with vacant possession, but the defendant had declined to leave. Apparently, the cottage being in a bad state of repair, a closing order had subsequently been made by the local authority, and in November an ejectment order had also been made, which had not been executed until May, 1920. The tenant then having been evicted, and the plaintiff having obtained possession, he put the house into thorough repair and had agreed to let it to another tenant. As we understand it, before the other tenant went into possession and before the closing order had actually been removed, the original tenant had effected an entry in October, 1920, and claimed that as he had always paid the rent and was willing to pay the rent with any increase allowed by the Rent Restriction Act from the date of his eviction down to the present time his tenancy was still subsisting.

The Court held that the tenancy was not subsisting in October when the defendant had re-taken possession, as the defendant had been guilty both of a breach of his statutory duty before his eviction in May to vacate the premises under the closing order as well as of a personal undertaking by him to leave the premises on January 31, and he had committed another breach of statutory duty in returning to the premises before the final removal of the closing order, and in these circumstances he was a trespasser. This mention in the judgment of some personal undertaking by the defendant makes it difficult to say whether it was a material point in the decision arrived at or whether the breaches of statutory duty alone would have sufficed, for in the statement of the facts in the report we do not find this undertaking referred to. Presumably, however, the breach of either the statutory duty or of the personal undertaking might have rendered the defendant a trespasser.

We may observe, in connection with the observation which fell from the Bench as to the silence observed in the housing and kindred Acts as to the effects of closing orders on existing tenancies, that until the legislature by the Rent Acts completely altered the relationship of landlord and tenant such questions could hardly arise. The class of house affected by closing orders would only be occupied by tenants whose term could be ended by short notice, and no continuity of tenure was in those Acts ever contemplated. The legislature has created a new kind of tenancy, called in the Rent Act a "statutory tenancy," and the cases brought before the courts as well as questions asked in the House of Commons tend to show that the rights in house property have been seriously, if not permanently, affected, and the relationship of landlord and tenant thrown into confusion. Until the Government and individual members of Parliament can see that the rights in house property are as sacred as the rights in any other kind of property, and that rents cannot be regulated at will to meet a rise in the cost of living or a fall in wages or any other transitory cause, the housing question will never be solved.

# COSTING FOR HOUSING SCHEMES.

The Ministry of Health has issued a memorandum (London: H.M. Stationery Office, price 9d. net) setting out the general principles of a system of costing which it is expected will be used where housing schemes are being carried out under contracts based on actual cost or by direct labour. Modifications may be necessary where houses are being built by special methods of construction, and the proposed systems should in such cases be referred to the Ministry of Health for approval. The memorandum has been written as though the work were being carried out under a contract, but the same principles will apply, with very slight modifications, in the case of a scheme carried out by direct labour. A complete set of the forms mentioned in the memorandum are given as an Appendix. The memorandum is as follows:

## Financial Accounts.

The memorandum is not intended as a complete statement of all the accounts that will require to be kept. It deals more particularly with the costing section of such accounts, *i.e.*, the grouping of expenditure under particular headings, and its allocation to definite jobs. The references to the financial accounts are mainly such as are necessary to secure proper correlation with the cost accounts, and to emphasise special points conducive to economy and security and the proper organisation of the work. It will be appreciated, however, that the accounting must be conducted on thoroughly sound principles, and particular reference is therefore made to the following points which are deemed indispensable to any satisfactory system of accounting for work of this nature—

(1) Complete and accurate accounts of all expenditure incurred in connection with the works should be kept separately from those of any other undertaking.

(2) An efficient timekeeping system should be adopted which must effectually prevent any payment for lost time, workers absent, or "dummy men." Workmen should not only be checked on and off the works, but also visited by the timekeeper while actually at work. A good tally system, or a system of clocking men "on" and "off" is generally to be recommended, though other systems of timekeeping may be followed provided the local authority is satisfied that they impose a proper check.

(3) The duties of making up the wages books and laying out and paying the wages should be assigned to different persons, or at least two persons should be associated in performing these duties.

(4) Payment of wages should be witnessed whenever possible by a representative of the local authority, who should appropriately certify the pay sheets. Book records should be kept, and receipts taken for all wages paid at times other than at the general payment, *i.e.*, for "subs," "pay-offs," or "unpaid wages." In the case of direct labour schemes, the wages should be paid by a representative of the accountant's department of the council, and the payments witnessed by a representative of the technical department responsible for carrying out the work.

(5) The check on materials should be such as will ensure that the quantities ordered are neither above nor below the actual requirements; that delays in delivery are promptly followed up; that all goods are carefully checked in on delivery; and that waste or pilfering can be detected.

(6) All quotations, copies of orders, delivery notes, invoices, accounts and other vouchers should be systematically filed, so that any document can be immediately turned up when required for reference or for audit purposes.

## Supervision.

The local authority, being the party to the contract directly responsible for its efficient and economical performance, should exercise through its technical and financial officers the closest supervision of the work in all its stages. This should include in addition to the normal technical supervision:—(*a*) The approval of orders as to quantity, quality and price; (*b*) approval of the numbers and rates of pay of the staff and workmen employed; (*c*) a close check on time records and of materials brought on the site; (*d*) a continuous internal audit of the contractor's accounts relating to the works, which should include verification of all pay sheets and invoices, and the careful scrutiny of every item to see that it is an expense properly chargeable under the contract and that proper discounts are obtained and allowed; (*e*) regular inspection of the costing records with a view to securing all possible economy in carrying out the work and to testing periodically the amount of expenditure incurred in relation to the amount of work executed.

## Objects of the Costing System.

The objects of the costing system are:—(*a*) To keep a record, under certain prescribed headings, of the actual cost of the work; (*b*) where the works comprised in the contract are divided into sections, to ascertain the exact cost of each section; (*c*) to determine, as soon as possible after the completion of each block the cost per house under the following headings, viz., (1) labour, (2) materials, (3) overhead charges; (*d*) to derive, during the progress of the works and through the accounts, information that may aid in securing further economies. The cost will be allocated as the work proceeds—that of labour to blocks, and that of materials to sections (*i.e.*, groups of blocks). Provisional apportionment of overhead charges should be made to the various sections as they are completed, but such apportionments may require some adjustments when making up the final accounts of the completed scheme.

## Labour.

(*a*) Analysis Required.—The wages paid each week should be recorded separately under the following headings, viz.:—

(1) Labour on erection, *i.e.*, engaged in actual house construction, which should be allocated to the specific blocks on which it was employed not only in money, but also in actual hours worked per trade, so as to provide a common unit for the comparison of labour costs without complications due to overtime, variations in rates of pay, &c. The hours worked by labourers attending upon each trade should be separately shown. In large schemes a small group of houses of the same type (*e.g.*, 8 or 10 houses) may be taken as the unit for allocating labour provided they are being erected simultaneously, and that the *first* blocks erected of each type are treated as separate units.

(2) Labour on manufactures on site, such as digging sand or gravel, making concrete blocks, or joinery, mortar mill, &c., which should be charged to the particular manufacture concerned.

(3) Labour on overhead services, which must be classified under such headings as are found necessary, *e.g.*—Erecting and maintaining plant, temporary buildings, &c.; internal haulage, including unloading, carting and stacking; pay of non-productive staff, such as storekeepers, watchmen, &c.

(*b*) Accounts for Labour Costing.—Books of "Daily Time Sheets," having analysis columns for the various trades, may be used by the timekeeper to record the hours worked each day on each block, or other work on which the men are engaged. The sheets are perforated, and those used should be torn out and sent to the office every day, when the information on them will be assembled—(1) In hours per man per week, for payments of wages; and (2) in hours per trade per block per week, for costing purposes.

Money can be allocated to the blocks by multiplying the hours worked per trade per block by the standard rate of wages, and adding where necessary the proper proportion of any extras due to overtime, &c. These extras should be shown in a separate column of the wages sheets, *i.e.*, actual hours worked should be shown in one column, and payable hours and extras should be recorded in separate columns.*

The totals of the labour allocated to each block and under the various other headings should then be brought together in a Wages Abstract, the total of which should be agreed each week with the total wages paid, as per pay sheets. It will be found convenient to keep this abstract on sheets with analysis columns on which the classified totals for successive weeks can be entered side by side, and accumulated totals brought out periodically.

The results of the costing of Labour on Erection will be transferred at the end of the week to a "Costing Sheet (Hours)," one for each block. This sheet is the permanent record on which the weekly totals of hours worked per block will be accumulated until the block is finished. Provision is made on this form for recording the stage of progress reached each week. The weekly totals of hours worked per trade per block should then be carefully compared each week with the progress, so as to detect any excess of labour in proportion to the work done.

## Materials.

(*a*) Objects.—The particular object to be kept in view is to ascertain as soon as possible after completion the cost of materials used on each house and more particularly on each type of house for which there is a different price. In large schemes it will be sufficient if the materials are allocated to sections consisting of groups of houses which it is intended to complete about the same time, the cost of each section when completed being divided among the houses comprised in it. It is essential, however, that the cost of any "sections" into which a contract may be divided for payment purposes shall be accurately determined, and all materials must be specifically allocated to such contract "sections," which will, therefore, require to be a multiple of the particular units adopted for the allocation of materials. The system must also be designed to ensure correct ordering; to secure that materials are dumped whenever possible where they will be required for use so as to avoid unnecessary carting; to prevent work being held up through any avoidable delay in the delivery of materials; and to impose safeguards against their wasteful use.

(*b*) Ordering Materials.—The amount of each material required for each type of house must be measured off, or Bills of Quantities taken out, showing materials separately from labour, and in a form convenient for ordering, *e.g.*, bricks in thousands, lime in tons, &c. By multiplying these quantities by the number of houses of that type in the section taken as the costing unit, an abstract can be prepared showing the quantities required to complete each section, and this should be used as the basis for ordering materials. Considerable importance is attached to earmarking materials in this way to the particular section on which they will be required, so that as soon as delivered they can be dumped direct on the proper section. The more valuable materials must, of course, be taken into store until actually required for use. Deliveries should be noted as soon as they occur on the copies of orders, or other suitable record. The record of orders and deliveries, in whatever form it is kept, should be constantly under examination so as to prevent as far as possible delays in delivery.

* As an alternative to the above method of allocation a combined "Time and Wages Book" could be used, on which the timekeeper would write in the time daily and the wages clerks work out the pay at the end of the week. Two sets of books would be required for use in alternate weeks, so that timekeepers and wages clerks could use the books simultaneously. It would be necessary to group together all the men employed on the same block and sub-group them in trades. In this way the number of hours worked per trade per block could be ascertained at the end of the week, also the wages chargeable to the particular block. The contractor may also, if he prefers, use his own forms of time sheets or cards, and pay sheets, provided that the necessary allocation of hours worked, and money, to the various blocks is secured. If the workman makes out his own time sheet, the total hours worked must be certified by the timekeeper, who will be responsible for their correctness.

(*c*) ACCOUNTS FOR MATERIALS.—The following types of accounts and records will be found suitable :—

(1) A manifold Order Book.—At least two carbon copies should be taken of each order, so that one can be supplied to the local authority, and the other retained by the contractor. The copy of the order form can with advantage be ruled so as to provide for noting all advices, deliveries and invoices in respect of each order.

(2) A Materials Received Book (manifold book), in which the persons responsible for checking-in materials should record the description and quantities of all materials received on the site, and whether delivered to a particular section or to stores. A copy should be sent to the office for accounting purposes, and a copy retained by the materials checker. It is desirable that the materials checker should not be aware of the actual quantities advised, so that he is obliged to make a definite count of goods delivered.

(3) An Invoice or Purchase Journal in which description, quantity, and net cost of all materials received will be recorded. Invoices should be marked off both in the Materials Received Book and in the Order Book before being passed for payment, to provide against the risk of double payments or over-supply by the merchant. It is a good system to have a rubber stamp setting forth clearly the steps to be followed with each invoice before it is passed for payment, *e.g.*—

(1) Examined with Materials Received Book .. (initials and date).
(2) Marked off in Order Book .. .. .. (initials and date).
(3) Prices and Discounts checked .. .. (Initials and date).
(4) Calculations checked .. (Initials and date).
(5) Passed for payment .. (Initials and date).
(6) I. J. Folio.....A/c Folio .....

Local authorities should make arrangements to inform the contractor of the actual price of materials requisitioned from D.B.M.S. as soon as possible after the final invoices have been received, so that the actual cost of such materials can be charged in the Cost Accounts. It will be found convenient to retain a special column in the Invoice Journal for recording the cost of all D.B.M.S. material. If, when the accounts are balanced, any invoices have not been received, the cost of the materials in question should be charged provisionally at the schedule price, such charges being adjusted later after the final prices have been notified by D.B.M.S. to the Local Authority.

(4) "Store Accounts," in which all materials received on the site should be posted under separate headings for each type of material. As the Store Accounts will be the medium for allocation of materials to the different sections, cost must be recorded as well as quantity. Materials delivered direct to a section should be accounted for by a simultaneous debit and credit in the Store Accounts. Other issues to the job should be made on requisition; the section, or special purpose (*e.g.*, manufacturing) for which the issue is made being recorded. Materials taken off the site, *e.g.*, returns to merchants, should be entered in red ink on the debit side as a deduction, and returns from a section to stores similarly entered in red ink on the credit side of the Store Accounts as a deduction. The debit side of the Store Account will thus remain a record of the exact amount of each type of material on the site. It is preferable to debit carriage items in the Store Accounts as part of the cost of the particular material. This will bring the price paid for the materials to a definite standard (*e.g.*, delivered to nearest railway station) by which fluctuations in prices can readily be compared. Cartage from siding to site need only be debited as part of the cost of materials if the tender prices on which fluctuations are assessed include delivery to the site. Returnable sacks and packages should be carried to a special account, a proper record being kept of all receipts and returns.

(5) Materials Cost Analysis Sheets having analysis columns for each section taken as the unit for costing purposes, in which to record the quantity and cost of all materials booked out from the Stores Account or otherwise charged to the unit, keeping a separate sheet for each trade. Credit entries, if any, *e.g.*, transfers from one section to another, or returns to stores, should be made in red ink as a deduction. If more convenient, the actual money cost may be charged periodically (say, once a quarter), at an "average price" for the period to be determined from the records in the Stores Accounts, but the allocation by quantity should not be allowed to fall into arrears. The "Abstract of Materials Sheets" form a satisfactory alternative to the "Materials Cost Analysis Sheets" for allocating materials to sections. One sheet must be used for each section, the quantities being charged up at regular intervals (say, weekly or monthly) and the whole monied out at "average prices" and balanced with the Store Accounts once a quarter.

(*d*) METHOD OF ALLOCATION.—Building materials may be classified broadly in two types which for the purpose of allocation require somewhat different treatment. These are :—Special materials, such as prepared timber cut to size, joinery, cement, sheet lead, lead pipe, paint, baths, stoves, most ironmongery, rainwater goods, sanitary fittings, &c., which are easy to count or measure, and can readily be allocated to particular groups of houses, and fluid materials, *i.e.*, timber in bulk, ballast, lime, sand, mortar, bricks, slates, tiles and plasterer's materials.

"Special" materials should be issued from the Store Accounts on requisition, and charged up to the proper section in that way. If the section contains houses of different types, *e.g.*, 10 type "A" and 20 type "B," it should be divided into sub-sections consisting of the 10 type "A" and 20 type "B" respectively, and such materials allocated to these sub-sections, so as to ascertain the cost of houses of the different types. "Fluid" materials can readily be allocated to sections, provided they are dumped on the proper section on delivery. But if the section contains houses of different types, it will be necessary to apportion the cost between the different types by measurement of the first houses of each type completed. In exceptional circumstances it may be agreed that the "fluid" materials be allocated by periodical measurement (say, every three months) of all such material built in, the Store Accounts being credited with the quantities thus charged to each section by measurement.

(*e*) CHECK ON WASTE OF MATERIALS.—As an immediate check on waste it is most necessary that there should be constant supervision by the technical staff employed on the works. It will be understood that waste from preventable causes cannot be charged to the cost of the work. Variations and extras will normally have been measured as the work proceeds. On the completion of the works the amount of waste will require to be tested by measurement of each type of house, and by making a comparison of the total measured quantities with the actual materials used (*i.e.*, the amount of materials delivered to the site less any surplus left over).

Intermediate tests of the amount of waste can be made as follows, according to the method of allocation adopted :—

(*a*) If the materials are allocated to the section at the time of issue, the quantities of each type of material charged by allocation to each completed section should be compared with the quantities estimated to be required, as per the Materials Abstract (or bills of quantities). In addition, stock should be taken periodically of unallocated materials, the actual stock being compared with the book balances shown in the Store Accounts.

(*b*) If the materials are allocated to the various sections by periodical measurement of the work executed, the unused stock of each material should be carefully checked (say, twice a year), and the quantity calculated to have been built in, plus unused stock, compared with the record of the total quantity received on the site.

In either case, any substantial discrepancies between the actual stock and the book balances must be investigated. Deficiencies found on stocktaking should be charged off the Store Accounts to a special "Deficiency on Stocktaking" Account, and will ultimately be allocated as on-cost provided they do not exceed a reasonable allowance for waste. Valuable materials and small stores which are liable to misuse should, of course, be checked by more frequent stocktaking.

### Heavy Plant.

A separate "Plant Account" will be required in which to record details of all heavy plant, including the date brought on or removed from the site, capital cost, and the amount representing hire or depreciation. The precise form of this account will depend on the terms of the particular contract.

### Manufactures on Site.

Separate "Manufacturing Accounts" should be kept of the various manufacturing processes conducted on the site, *e.g.*, digging sand or ballast, making concrete blocks or joinery, mortar mill, &c. These accounts must provide for a record of the cost of the process in labour and materials over a given period, and of the total output and quantities issued to the different sections over the same period. The ascertained cost of the manufactured articles must be allocated to the sections in the proportions issued to each.

### Overhead Charges.

(*a*) DEFINITION.—The following types of expenditure, which cannot be directly allocated to particular sections, will require to be treated as overhead charges, or on-cost, viz. :—

(*a*) Miscellaneous expenses, such as salaries of supervising and clerical staff wholly engaged on the site, insurance, plant, power, heating, office expenses, &c.

(*b*) Indirect wages, such as labour on erecting and maintaining plant, haulage, including unloading and stacking, &c.

(*c*) Materials (mostly consumable stores) for repair of heavy plant, maintaining power, lighting and heating installations, &c.

Account of the miscellaneous expenses can most conveniently be kept in a "Miscellaneous Expenses Journal," the analysed headings in which should correspond with those shown on the "Costs Assembly Sheet" with such other additions as may prove necessary.

(*b*) METHOD OF ALLOCATION OF ON-COST.—Provisional allocations of on-cost should be made as each section (*i.e.*, unit for costing materials) is completed, but subsequent adjustment may in certain cases be necessary. For the purpose of this allocation an "On-cost Apportionment Account" should be opened which should be debited from time to time with the total amount for the period of the various types of on-cost, and credited with the amounts apportioned to the various sections as they are completed. An equitable basis of apportionment is indicated below, though it may at times require modification according to the circumstances of the particular case, especially on very large schemes where the preliminary work is heavy :—

| TYPE OF ON-COST. | BASIS OF APPORTIONMENT. |
|---|---|
| (*a*) Builders' Plant .. | Fixed sum per completed house, according to the terms of the Contract. |
| (*b*) Transport where not included as part of the cost of materials, *e.g.*, external and internal haulage, unloading, &c. | Ratio that materials charged to the section bear to total materials delivered to date. |
| (*c*) Current expenses, *e.g.*, salaries, office expenses, insurances, &c. Heavy plant — hire, erection and maintenance. Power, lighting, heating, water, &c. | Ratio that direct wages charged to completed sections bear to total direct wages of the whole scheme to date |
| (*d*) Capital expenditure on plant. | Calculate depreciation allowance to date according to the terms of the Contract, and apportion in same ratio as at (*c*). |

### Assembly of Total Cost.

(*a*) Primary Accounts of Expenditure.—The system outlined in the preceding paragraphs provides for keeping three Expense Journals, which, taken together, will disclose at any time the total accumulated cost of the work. These are:—

(1) A "Wages Abstract," in which wages are analysed as—(*a*) Labour on erection; (*b*) Labour on manufactures on site; and (*c*) Labour on overhead services.

(2) An "Invoice Journal," in which materials are sub-divided for convenience as—(*a*) Materials purchased by contractor; and (*b*) Materials requisitioned from D.B.M.S.

(3) A "Miscellaneous Expenses Journal," in which all miscellaneous expenses, such as plant, transport, and current expenses should be classified under the detailed headings shown on the "Costs Assembly Sheet." They could, if desired, be incorporated in a single journal showing the whole of the expenses incurred on the works under the necessary headings. These Journals, or forms to the like effect, can with advantage be adopted as an integral part of the general system of accounts relating to the works, and will form the necessary connecting link between these and the Cost Accounts.

(*b*) Balancing the Cost Accounts.—To prove the correctness of the Cost Accounts it is necessary that an agreement should be effected periodically, and for this purpose a balancing statement should be taken out at least once a quarter on the Costs Assembly Sheet. This form provides for—(1) Taking out in detail the totals of the Expenditure Journals, and (2) taking out the totals of labour, materials, and on-cost charged to each section taken as the costing unit, together with the balances appearing in the various Suspense Accounts, *i.e.*, Store Accounts, Manufacturing Accounts, On-cost Apportionment Account, &c., through which certain items of expenditure must be carried before their final allocation. The grand totals of (1) and (2) should agree. The mode of effecting a periodical reconciliation of the contractor's cost accounts with the local authority's accounts of the cost of the work will require to be determined by the local authority concerned, having regard to the precise terms of the contract and the arrangements made for issuing interim certificates. In this description no account has been taken of retention money or payments on account of profit, the intention being to allocate only the expenditure included in the term "actual cost," as defined in a No. 3 Contract, and to defer any allocation of profit until the final accounts are made up.

### Fluctuations.

When the basic or maximum price (under a contract) or the limiting price (in a direct labour scheme) is subject to an allowance for fluctuations in the prices for labour and materials as compared with the prices ruling at the date of the tender, it is important that a continuous record should be kept of the additions to or deductions from cost due to such fluctuations. In the case of labour such amounts can be determined each week by taking the total number of hours worked by each trade, and multiplying by the difference between the rate ruling at the date of the tender and the current rate per hour. In the case of materials the price ruling at the date of the tender and the actual price paid must first be reduced to a common factor for comparison, *e.g.*, price delivered to the nearest railway station. Provision is made in the Store Accounts for determining periodically the extra (or reduced) cost due to fluctuations in prices; or, if preferred, special columns for this purpose may be provided in the Invoice Journal. The local authority can ascertain from these records what claims are likely to be made by the contractor for allowances in respect of fluctuations in rates of labour and materials. Such claims should be presented to the local authority at regular intervals and the amounts provisionally agreed, subject to review when the final accounts are made up.

## RATES OF WAGES IN THE BUILDING TRADE.

The following are the present rates of wages in the building trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur:—

| | Masons. | Bricklayers. | Carpenters, Joiners. | Plasterers. | Slaters. | Plumbers. | Painters. | Masons' Bricklayers' Labourers. | Plasterers' Labourers. |
|---|---|---|---|---|---|---|---|---|---|
| Aberdare | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Accrington | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/0–2/0½ | |
| Alfreton | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/0–2/0½ | |
| Ashton-under-Lyne | 2/4 | 2/4 | 2/6 | 2/6 | 2/4 | 2/5 | 2/4 | 2/0–2/0½ | |
| Barnsley | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Barrow-in-Furness | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/0–2/0½ | |
| Barry | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Bath | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/9 | |
| Bedford | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/9 | |
| Birkenhead | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/0½ | |
| Birmingham | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/5 | 2/4 | 2/1 | |
| Bishop Auckland | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Blackburn | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/0–2/0½ | |
| Blackpool | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/0–2/0½ | |
| Bolton | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/0–2/0½ | |
| Bournemouth | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/9 | |
| Bradford | 2/6 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Bridgwater | 1/10½ | 1/10½ | 1/10½ | 1/10½ | 1/10½ | 1/10½ | 1/10½ | 1/7½ | |
| Brighton | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/9 | |
| Bristol | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Burnley | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/0–2/0½ | |
| Burton-on-Trent | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 1/11½ | |
| Bury | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/0–2/0½ | |
| Cambridge | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/9 | |
| Cardiff | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Chatham | 1/11 | 1/11 | 1/11 | 1/11 | 1/11 | 1/11 | 1/11 | 1/8 | |
| Chelmsford | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/9 | |
| Cheltenham | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/9 | |
| Chester | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/0–2/0½ | |
| Chesterfield | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Colchester | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/9 | |
| Coventry | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Crewe | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 1/10½–1/11½ | |
| Darlington | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Derby | 2/1 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Doncaster | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Dudley | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 1/11½ | |
| Durham | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| East Glam. and Mon. Valleys | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Exeter | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/11 | 1/9 | |
| Folkestone | 1/11 | 1/11 | 1/11 | 1/11 | 1/11 | 1/11 | 1/11 | 1/8 | |
| Gloucester | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/11 | 1/9 | |
| Grantham | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 1/11½ | |
| Grays | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4½ | 2/3 | 2/1 | |
| Grimsby | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Great Yarmouth | 1/11 | 1/11 | 1/11 | 1/11 | 1/11 | 1/11 | 1/11 | 1/8 | |
| Guildford | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/9 | |
| Halifax | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Harrogate | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Hartlepools | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Hastings | 1/11 | 1/11 | 1/11 | 1/11 | 1/11 | 1/11 | 1/11 | 1/8 | |
| Hereford | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/11 | 1/9 | |
| Huddersfield | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Hull | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Ipswich | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/9 | |
| Lancaster | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/0–2/0½ | |
| Leamington Spa | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 1/11½ | |
| Leeds | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Leicester | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4½ | 2/4 | 2/1 | |
| Lichfield | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 1/11½ | |
| Lincoln | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Liverpool | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/0½ | |
| Llanelly | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| London | 2/6 | 2/6 | 2/6 | 2/6 | — | 2/6½ | 2/3 | 2/1 | |
| Loughborough | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4½ | 2/4 | 2/1 | |
| Luton | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/9 | |
| Maidstone | 1/11 | 1/11 | 1/11 | 1/11 | 1/11 | 1/11 | 1/11 | 1/8 | |
| Manchester | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/0–2/0½ | |
| Mansfield | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/3 | 2/2½ | 1/11½ | |
| Merthyr Tydfil | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Middlesbrough | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Newcastle-on-Tyne | 2/6 | 2/6 | 2/6 | 2/6 | 2/6 | 2/6 | 2/6 | 2/1 | |
| Newport, Mon. | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Northampton | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 1/11½ | |
| Norwich | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/9 | |
| Nottingham | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4½ | 2/4 | 2/1 | |
| Oakham | 2/1 | 2/1 | 2/– | 2/1 | 2/1 | 2/1 | 2/1 | 1/10 | |
| Oldham | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/0–2/0½ | |
| Oxford | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/9 | |
| Plymouth | 2/1 | 2/1 | 2/1 | 2/1 | 2/1 | 2/1 | 2/– | 1/10 | |
| Pontypridd | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Portsmouth | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/9 | |
| Preston | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/0–2/0½ | |
| Reading | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/9 | |
| Rochdale | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/6 | 2/4 | 2/0–2/0½ | |
| Rochester | 1/11 | 1/11 | 1/11 | 1/11 | 1/11 | 1/11 | 1/11 | 1/8 | |
| Rugby | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 1/11½ | |
| St. Albans | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/8 | |
| St. Helen's | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/0–2/0½ | |
| Scarborough | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 1/11½ | |
| Sheffield | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Shrewsbury | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 1/11½ | |
| Southampton | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/9 | |
| Southend-on-Sea | 2/0½ | 2/0½ | 2/0½ | 2/0½ | 2/0½ | 2/0½ | 1/11½ | 2/0–2/0½ | |
| Southport | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| South Shields | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/6 | 2/0–2/0½ | |
| Stockport | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Stockton-on-Tees | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 1/11½ | |
| Stoke-on-Trent | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 1/9 | |
| Stroud | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/11½ | 2/1 | |
| Sunderland | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/1 | |
| Swansea | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 1/9 | |
| Taunton | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 1/9 | |
| Torquay | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/1 | |
| Wakefield | 2/4 | 2/6 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 1/11½ | |
| Walsall | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/3½ | 2/2½ | 2/0–2/0½ | |
| Warrington | 2/4 | 2/6 | 2/4 | 2/4 | 2/4 | 2/6 | 2/4 | 2/1 | |
| West Bromwich | 2/4 | 2/6 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/0–2/0½ | |
| Wigan | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 1/9 | |
| Windsor | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/– | 2/1 | |
| Wolverhampton | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 1/11½ | |
| Worcester | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 1/11½ | |
| York | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | 2/2½ | | |

# PROPOSED NEW BUILDINGS AND OTHER WORKS.*

**In these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; B.C. for Education Committee; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.**

AMERSHAM.—Plans passed by R.D.C.:—Bungalow, Orchard-grove, for Mr. J. Elleston; additions, 7, London-terrace, High-road, for Mr. G. C. Carver.

BANGOR.—The Hon. Treasurer of the Carnarvonshire and Anglesey Infirmary has received £550 from the committee and officers of the Rhosneigr War Hospital Supply Depot, for the erection of the new operating theatre in the proposed early extension of the hospital building.

BURTON-ON-TRENT.—The Committee of the Infirmary have under consideration a scheme for the erection of a nursing home. A site has been secured and plans will be prepared shortly.

CAMBERWELL.—Drainage plans passed by B.C.: At 202 & 204, Cator-street, for Mr. S. Summerford; at 21 & 23 Bromar-road, for Mr. T. Bell; at 94, Lordship-lane, for Mr. A. J. Johnson; at 206, Cator-street, for Mr. E. Beckman; at 9 & 11, Cuthill-road, for Mr. A. Smith; at 59, Peckham-road, for Mr. J. Slater.

CHICHESTER.—At the Easter vestry it was decided that the Council should obtain estimates with a view to restoring St. Bartholomew's Church.

CLYDE.—The Clyde Trust has bought a new ground for the Renfrew and Shieldhall dock scheme. When completed, the Clyde dock accommodation will be doubled and the quay frontage added to by two miles.

COALVILLE.—The Ministry of Health has sanctioned the U.D.C. borrowing £187,600 for housing purposes.

CRANBROOK.—Plan passed by R.D.C.: Bungalow at Eaglesden, Benenden, for Mr. F. Levey.

EPSOM.—Plans passed by R.D.C.:—Four pairs of houses, Meadowside-road, for the Cheam Fields Public Utility Society; works, Malden-road, for Mr. E. B. Mason.

FELIXSTOWE.—As a result of the application made by the U.D.C. to the Minister of Health for sanction to borrow £667 for works of surface water drainage in portions of Garrison-lane and Mill-lane, Mr. F. Gregson Williams, the Ministry's Inspector, has held an inquiry.

HACKNEY.—Plans passed: Workshop, &c., Andre-street, for Messrs. S. Wright & Co.; drainage, &c., Great Northern Railway depot, Hackney Wick, for Mr. F. W. Hunt; drainage. "Caledonian" public house, 116, Stoke Newington-road, for Mr. F. M. Kirby; motor garage, 166, Evering-road, for Messrs. J. R. Cordell & Sons; drainage, 29, Clapton-common, for Mr. Johnson Roberts; workshop, &c., 30, Church-road, for Mr. T. Tutt; garage, &c., 122, Stamford-hill, for Mr. J. D. Power; sanitary work, L.C.C. School of Physically Defective Children, College-lane; drainage, 10 houses, 5-14, Malward-road, and two houses, 85 & 87, Oswald-street, for Messrs. Matthews, Matthews & Goodman; at 45, 47 & 49, Thistlewaite-road, for Messrs. W. T. Fisher; at eight houses, 28-42, Darnley-road, for Messrs. Alston Bros.

HOVE.—Plans passed by T.C.: Mr. F. E. Brown for Mrs. Reed, conversion into flats, 13, Lower Market-street; Mrs. F. J. Harvey, tea rooms, Errol-road, S.W. corner; Messrs. Houston & Houston, for Dr. V. C. Hackworth, detached house, Pembroke-gardens, W.; Mr. B. Theodore, for Mrs. Block, conversion into flats, 7, Medina-terrace; Mr. A. H. Lainson, for Mr. H. B. Atkinson, motor garage, 39, Brunswick-square; Mr. G. Kelsey, alterations, 2, Belfast-street; Col. St. Leger, motor garage, 5, King's-mews, Third-avenue; Brighton and Hove General Gas Co., Ltd., five wooden bungalows, Aldrington Basin; Miss M. Purvis, conversion into flats, 70, Brunswick-place; Mr. H. Smith, for Mr. L. N. Schoenfeld, addition, 2, Adelaide-crescent; Mr. G. H. Fox for Mr. J. Sainsbury, alterations, 3, Western-road; Mr. G. Smith for Mrs. Cowell, bath-room, 46, Brunswick-square; Messrs. W. J. Grimes & Co., Ltd., bungalow, Tandridge-road.

LEEDS.—Certificates have been given for the construction of the following houses:—Mr. H. Lax, 4 semi-detached houses, Thorn-lane, Gledhow; Messrs. C. H. & P. Lax, 2 houses, West Park-avenue; A. Geldard & Co., 2 houses, Moor House Estate; Mr. H Lax, 2 semi-detached houses, West Park-grove, Roundhay; Mr. G. Collett, bungalow, Hill Top, Mearwood; Mr. A. Dean, 4 houses, Gledhow Wood-road; Mr. Arthur Smith, 4 terrace houses, Houghley-lane, Bramley; Mr. S. Howarth, timber bungalow, Gateland-lane, Shadwell.

LONDON (SOUTHWARK).—Drainage plans passed by B.C.:—Mr. W. Robertson, to 217–219, New Kent-road; E. R. Bliss & Co., to factory, Pocock-street; Amalgamated Press, to premises, Sumner-street; British Shoe Co., to 113, Borough High-street; J. J. Keliher & Co., Ltd., to 207A, Borough High-street; Mr. S. Park, to 13, Tabard-street.

MAIDENHEAD.—Bank premises, High-street, for the London City and Midland Bank.

NEW ROMNEY.—Plans passed by B.C.:—House, Messrs. Brewer Bros., or Mrs. Bowdell.

NEWPORT (ISLE OF WIGHT).—Plans passed:—Addition to shop, Lugley-street, Messrs. Stratton & Millgate, architects, for Mr. W. Cleck.

NORTH DARLEY.—Plans passed by U.D.C.:—Fourteen houses, Oddford-lane, for Mr. A. P. Hill; two houses, Station-road, for Mr. Lehane.

NORTHAMPTON.—Plans passed by T.C.: Alterations to premises, Abington-street, for Messrs. A. Kingham, Ltd.; timber drying shed, Chaucer-street, for Mr. Henry Green; four houses, Abington-avenue, for A. P. Hawtin & Sons; additions to factory, St. Mary's-street, for W. J. Rushton & Co., Ltd.; additions to factory, Arthur-street, for A. O. Miller Last Co., Ltd.; conversion of part of house into shop, 3, Abbey-street, for Mr. Stow; garage, 53, St. Matthew's-parade, for Mr. A. H. Allen; shed, The Riding, for Mr. W. J. Slade; warehouse, Wood-street, for A. R. & W. Cleaver, Ltd.; additions, 60, Waterloo, for Mr. M. Marriott; house, Stimpson-avenue, for Mr. A. J. Tilley; bungalow, Houghton-road, for Mr. A. G. Godwin.

OSSETT.—Plan passed: Alterations to offices at Dale-street, for the Ossett Industrial Co-operative Society, Ltd.

PAISLEY.—The plans were passed at the Dean of Guild Court of a two-story building consisting of shops and offices to be erected in Moss-street at the instance of Mr. James Crawford, boot and shoemaker, 97, High-street, Paisley.

PLYMOUTH.—Plans passed by T.C.:—A. W. Foster, shop, 5, Peverell Park-road; W. T. Jinkin, dwelling-house, Coleridge-road; F. Finch, alterations, Durham House, Cecil-street; Mrs. Cavendish, addition to dwelling-house, 12, Windsor-place; Royal Ancient Order of Buffaloes (S.B.), alterations and additions, 26, William-street, Devonport; Montague Burton, Ltd., alterations to shops, 196 and 197, Union-street, Plymouth; W. Mumford, alterations, 64 and 66, Ebrington-street (revised); S. J. Boultwood, reconstruction of Picture House, George-street; Palladium (Plymouth), Ltd., Kinematograph Theatre Skating Rink, Ebrington-street.

READING.—Plans passed by T.C.: Detached residence, Grosvenor-road, for Mr. H. J. Maryon; pair of villas, Victoria-road, for Mr. A. Francis; additions to premises, East-street, for Messrs. Boyd & Murley, Ltd.; library at University College for Mr. A. Palmer; additions, 31, Upper Redlands-road, for Mrs. Nicholl; cart-shed, Norris Farm, Lower Whitley, for Mr. W. Stanley.

ROTHERHAM.—Plans passed by T.C.:—Mr. Ernest Simpson, West-street, wood-framed building; Mr. T. W. Outram, Truro-place, extension to existing garage; Mr. J. H. Neal, Wickersley-road, stable, &c.; Mr. A. Thompson, Ramsden-road, dwelling-house; Messrs. Williams Deacons Bank, Ltd., corner of High-street and Wellgate, alterations and additions to Bank premises; Mr. W. E. Earnshaw, Clough-road, bungalow; Messrs. Duncan Gilmour & Co., Ltd., Holmes-lane, rebuilding of the "Red Bull Inn."

RYE.—Plans passed by R.D.C.:—Bungalow, Rye Harbour, for Mr. R. W. Watson; alterations, Firebrand House, Winchelsea, for Captain Burke.

ST. GERMANS.—The R.D.C. has reconsidered its decision to erect no more houses and has decided to build 55 more.

SEDGEFIELD.—The R.D.C. has decided to proceed with the erection of 96 houses in the Ferryhill district, 50 at Cornforth, 48 at Trimdon Grange, 10 at Old Trimdon, and 6 at Fishburn, and to ask the Ministry of Health for a loan of £200,000 for the purpose.

SHEFFIELD.—Plans passed:—House, Muskoka-avenue, for Mr. C. M. Doncaster; house, Carter Knowle-road, for Mr. F. Somerfield; new street, Greystones-drive, for W. Hatfield Green's Trustees; house, Carr Bank-lane, for Mr. James Samuel. On the application of Messrs. Gibbs, Flockton & Teather, architects, the Council is allowing work at the Scala Picture Theatre to proceed.

SKEGNESS.—The War Memorial Committee has decided to erect a memorial in Portland stone, 20 feet high, at the south side of St. Matthew's Church, at a cost of £575.

SOUTH SHIELDS.—Plans passed:—Mr. Howard Hill, for Mr. Wm. Henderson, rope store, Coronation-street; Mr. Howard Hill, for Mr. Wm. Tudor, cartshed off Victoria-road; Mr. Howard Hill, for Mr. Wm. Maddick, covering in of yard at 45, Wilson-street; Mr. J. H. Morton, for Mr. Julian Bainbridge, alterations to Marina Theatre, Pier Parade; Mr. J. H. Morton, for Mr. F. Johnston, Jun., covering in of yard as workshop, Hill-street; Mr. Geo. R. Smith, for Mrs. Angela Franchi and Mrs. Teresa d'Ambrosie, alterations to business and residential premises, 3, Ocean-road; Messrs. T. A. Page & Son, for Messrs. Alex. Deuchar, Ltd., alterations to "Marine Hotel," Ocean-road; Messrs. T. A. Page & Son, for Mr. Geo. Duncan, have plans before the Council for rebuilding of the Cumberland Arms P.H., Mill Dam, and for a theatre, Wallis-street, for Mr. W. Glaze.

SUNDERLAND.—The sons and daughters of the late Mr. J. Y. Short, shipbuilder, have, in memory of their father, given £5,000 to the Sunderland Royal Infirmary, with a request that the money be devoted to the building of an operating theatre.

TONBRIDGE.—House at Horsmonden, for Mr. R. Burr.

WEYMOUTH.—Plans approved by T.C.:—Trap house, 30, Cromwell-road, for Mr. C. J. Palmer; drainage, 2, Hill-court, Messrs. Jesty & Baker, for Mrs. Bunting; drainage, 12, 13, 14, 15 and 16, Bury-street, for Messrs. S. Jackson & Son; sanitary work, 2 and 3, St. Alban-street, for Messrs. S. Jackson & Son.

WIGTON.—Plans have been passed for a recreation room at Westnewton, and for a new stable on Mr. J. Carr's farm, at Kirkbride.

WINDSOR.—Plans passed by R.D.C.:—Alterations to shop South Ascot, for Mrs. Sole; additions to workshops, Kennel Side, Ascot, for Ascot Motor Body Works.

WORTHING.—Plans passed by T.C.:—House, Grand-avenue, Mr. T. R. Hyde, for Mr. A. G. Bonsor; four dwelling-houses, Mill-road, for Mr. A. A. Adams; timber-frame garage, 21, Langton-road, Mr. E. W. Sparks, for Mr. W. F. Horley; two dwelling-houses, Heene-road, Mr. A. Carden, for Mr. W. A. Jolton; two dwelling-houses, Windsor-road, Mr. J. E. Lund, for Mr. J. Frampton; two timber-framed one-story dwelling-houses, Elm-grove, Mr. H. M. Potter, for Mr. H. Tier; additional story to bakehouse, South-street, Tarring, Messrs. Patching & Co., for Mr. J. Collins.

* See also our List of Contracts, Competitions, etc.

### FIRES.

APPLEBY.—A fire has occurred at the shop of Mr. J. Blades, High Wiend.

EBBW VALE.—A serious fire has occurred at the premises known as the Bonanza, one of the largest drapery establishments in the town.

GLASGOW.—A fire, causing damage estimated at £800, has occurred in the premises of Messrs. Hector & Inglis, timber merchants and sawmillers, 160, Berkeley-street, Glasgow.—Damage amounting to £300 was caused by a fire which broke out in the bakery of Messrs. M'Farlane, Lang & Co., 38, Wesleyan-street, Mile-end.

WALLSEND.—Considerable damage has been done by fire at Messrs. Swan, Hunter & Wigham Richardson's Shipyard.

# PATENTS.

APPLICATIONS PUBLISHED.*

112,450.—W. C. Davis: Method of and means for reinforcing concrete work for parapets, balconies, verandahs, baluster railings, fancy fences, and other structures.

130,982.—M. Ordfrud: Moulds for use in casting buildings and the like of concrete or other cast material.

139,510.—M. A. Buelle: Mechanical cleaner for cleaning any horizontal, vertical, or other surface, such as floors, walls, windows, &c.

141,727.—Hulzbearbeitungsges, K. Haring and E. Voit: Process for drying wood.

146,119.—M. Tons: Rod joints allowing of hinging movement.

156,829.—D. Van der Woudé: Central heating systems.

156,855.—W. H. Bull: Method of fixing tip-up seats on floor surfaces.

156,867.—C. H. Latimer and H. G. Tedstane: Tool for use in marking and cutting joints of mouldings.

156,882.—F. A Noullet: Building blocks formed of plastic material.

156,897.—C. Aiolfi: Glass roofs and sky-lights.

156,902.—E. R. Subroyar: Devices for adjusting and securing doors and windows.

156,903.—J. Angus: Sectional fences and gates.

156,908.—Arrol-Johnson, Ltd., and G. W. Eastwood: Fasteners for doors.

156,933.—J. R. Matthews and J. R. Bowers: Concrete slab or block buildings.

156,934.—R. E. Matthews and J. R. Bowers: Means for and method of constructing buildings or structures of concrete and the like slabs or blocks.

156,971.—Y. Nishizawa: Sulphide composition for painting which resists the action of light and heat.

156,973.—F. C. C. Rings: Reinforced concrete beam floors.

157,510.—E. L. Warren and W. J. Parker: Machines for making concrete or breeze blocks.

157,541.—S. E. Saunders: Dwelling-houses.

157,551.—J. R. Meacock and T. Meacock: Lifting appliances on overhead girders or runways.

157,579.—J. L. Tann and J. Tann, Ltd.: Protective device for safes, strong rooms, and the like.

157,589.—E. Keel: Machine for the production of hollow building stones.

157,597.—M. S. Knutsen: Wooden building elements.

157,638.—W. Rooke: Building blocks and the like.

157,643.—R. E. Ackroyd: Fire-places.

157,678.—E. Szozeponik: Non-freezing flushing apparatus.

158,012.—P. C. Cannon: Apparatus for use in manufacturing concrete and like blocks, pipes, posts, girders and the like.

158,015.—E. F. Willoughby and E. M. B. Revill: Stay for casement and like windows.

* All these applications are now in the stage in which opposition to the grant of Patents upon them may be made.

# CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

*The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where quantities, forms of tender, &c., may be obtained.*

## BUILDING AND PAINTING.

APRIL 16.—**Ashby Woulds.**—HOUSES.—Erection of 8 houses at Albert Village, for the U.D.C. Messrs. Baines & Provis, architects, 22, Friar-lane, Leicester.

APRIL 16.—**Bradford.**—HOUSES.—Erection of 16 houses Class A, 54 houses Class B and B4, 64 houses Class A, 128 houses Class B and B4, for the T.C. City Architect, Town Hall, Bradford.

APRIL 16.—**Sheffield.**—REFUSE DISPOSAL WORKS.—Erection and supply of buildings and plant for new refuse disposal works, for the T.C. Messrs. Morrimore, Lyon & Co., engineers, 48, Mansfield Chambers, St. Ann's-square, Manchester. Deposit £5 5s.

APRIL 16.—**Stamford.**—HOUSES.—Erection of 66 houses upon the land south of New Cross-road, for the T.C. Mr. F. R. Ryman, Borough Engineer, Town Hall, Stamford. Deposit £2.

APRIL 16.—**Thornbury and Scholemoor.**—HOUSES.—Erection of following houses for the Corporation of the City of Bradford: Thornbury, 70; Scholemoor 192. The City Architect, Town Hall, Bradford.

APRIL 18.—**Ardrossan.**—FILTER HOUSE.—Erection of new filter house at Milligen Filters, Dalry-road, Ardrossan, for the T.C. Mr. James C. Duncan, Water Manager, Burgh Chambers, Ardrossan. Deposit, £1 1s.

APRIL 18.—**Blaydon.**—HOUSES.—Erection of 200 houses, for the U.D.C. Council's Surveyor, Blaydon. Deposit £1 1s.

APRIL 18.—**Bristol.**—PAINTING.—(*a*) Painting, &c., the Children's Homes, Downend; (*b*) Painting, &c., the Children's Headquarters Homes, Fishponds; and (*c*) Painting, &c., outside of infirmaries at Stapleton Institution, for the Board of Guardians. Mr. J. J. Simpson, Clerk, St. Peter's Hospital, Bristol.

APRIL 18.—**Bromley District.**—HOUSES, &c.—Road making and construction of sewers in connection with four sites, and the erection of the following houses, in pairs, with footpaths, fencing, &c.: Chelsfield, 50; Farnborough, 16; Hayes, 10; Keston, 32; Knockholt, 12; Orpington, 130; St. Mary Cray, 50; West Wickham, 12, for Bromley R.D.C. Mr. F. Danby Smith, F.R.I.B.A., Parliament Mansions, Victoria-street, S.W.1.

APRIL 18.—**Chipping Wycombe.**—HOUSES.—Erection of 28 houses in Terriers housing scheme, for the B.C. Mr. T. J. Rushbrooke, Borough Surveyor, 25, Easton-street, High Wycombe. Deposit £1.

APRIL 18.—**Cork.**—ADDITION.—For an addition to the "Sacred Heart College," Mardyke, Cork. Mr. James Mackey, quantity surveyor, 58, Dame-street, Dublin. Deposit, £1.

APRIL 18.—**Derbyshire.**—ARCHES.—For the work of widening the Northern Approach and Flood Arches to Sawley Bridge over the River Trent, for the Derbyshire C.C. Mr. J. W. Horton, County Surveyor, St. Mary's Gate, Derby.

APRIL 18.—**Feltham.**—HOUSES.—Erection of 50 houses at Feltham, Middlesex, for the Commissioners of H.M. Works. The Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W.1. Deposit £1 1s.

APRIL 18.—**Glasgow.**—PAINTING.—For the painting and cleaning works required in Kingston Halls, Paisley-road, for the T.C. Office of Public Works, City Chambers, 64, Cochrane-street, Glasgow.

APRIL 18.—**Glasgow.**—PAINTING.—For the painting and cleaning works required in Bridgeton, Woodside, and Possilpark Libraries, for the T.C. The Office of Public Works, City Chambers, 64, Cochrane-street, Glasgow.

APRIL 18.—**Glyncorrwg.**—HOUSES.—For firm or lump sum tender per house for building 80 houses at Duffryn Rhondda, for the U.D.C. Mr. W. P. Jones, Council Offices, Cymmer, Port Talbot. Deposit, £1.

APRIL 18.—**Rawcliffe.**—PAINTING.—For painting the greenhouses at Rawcliffe Hall Institution, Rawcliffe, near Goole, for the West Riding Mental Deficiency Act Committee. West Riding Architect, County Hall, Wakefield.

APRIL 18.—**Warrington.**—PAINTING.—For the outside painting of the Town Hall, &c., for the T.C. Mr. Andrew M. Ker, Borough Engineer, Warrington.

APRIL 19.—**Darlington.**—HOUSES.—Erection of nine houses, for the T.C. Mr. George Winter, Borough Surveyor, Town Hall, Darlington. Deposit £1 1s.

APRIL 19.—**Hull.**—PAINTING.—For painting at certain of the Schools of the T.C. Mr. J. T. Riley, Director of Education, Education Offices, Albion-street, Hull.

APRIL 19.—**Loughborough.**—HOUSES.—Erection of 34 houses on Land Corporation and Oliver-roads, for the Borough of Loughborough. Messrs. Albert E. King & Co., architects and surveyors, 19, Baxter-gate, Loughborough. Deposit £1 1s.

APRIL 20.—**Dunfermline.**—FENCING.—For wood fencing and gates, iron fencing and gates, &c., in connection with Brucefield housing scheme, for the T.C. Burgh Engineer, City Chambers, Dunfermline.

APRIL 20.—**Haslingden.**—HOUSES.—Erection of 42 brick houses on Longshoot site, and 12 on Helmshore site, for the T.C. Mr. A. Brocklehurst, architect, St. James-chambers, Waterfoot. Deposit, £1 1s.

APRIL 20.—**Leeds.**—PAINTING.—Painting and decorating in the Town Hall. Mr. W. T. Lancashire, City Engineer, Municipal Buildings, Leeds.

APRIL 20.—**Nottingham.**—HOUSES.—Erection of houses for the T.C. Housing Department, Trinity-square, Nottingham. Deposit, £1 1s.

APRIL 20.—**Sherborne.**—REPAIRS.—Repairs at the Crackmore Rifle Range, Sherborne, for the Dorset Territorial Force Associations. Mr. F. T. Maltby architect, Dorchester.

APRIL 20.—**Wareham.**—REPAIRS.—For repairs at the Creech Rifle Range, Wareham, for the Dorset Territorial Force Associations. Mr. F. T. Maltby, architect, Dorchester.

APRIL 21.—**Ashby-de-la-Zouch.**—HOUSES.—Erection and completion of 100 houses for the R.D.C., on various sites. Mr. Harry Swanwick, architect and surveyor, 10A, High-street, Coalville.

APRIL 21.—**Bishop Auckland.**—PAINTING.—For outside painting of the Helmington-row Hospital Buildings near Crook, for the Auckland, Shildon, and Willington Joint Hospital Board. Mr. Sam Adams, Clerk, Union Offices, Bishop Auckland.

APRIL 21.—**Brandon.**—HOUSES.—Erection of 12 houses, for the R.D.C. Messrs. Hunt & Coates, architects, 51, Abbeygate-street, Bury St. Edmunds. Deposit £2 2s.

✱APRIL 21.—**Canterbury.**—HOUSES.—Erection and completion of 68 houses for the City and County Borough Council. Mr. F. H. Dore, architect, 25, Watling-street, Canterbury. Deposit, £2 2s.

APRIL 21.—**Chipping Norton.**—HOUSES.—Erection of houses in Chadlington, 4 stone-built houses; Charlbury 16 stone houses and 14 brick houses; Kingham 10 brick houses; Great Rollright, 6 brick houses, for the R.D.C. Mr. W. A. Daft, architect, 9, New-road, Oxford. Deposit, £3 3s.

APRIL 21.—**Clutton.**—HOUSES.—Erection of 12 houses at Clutton, for the R.D.C. Messrs. Petter & Warren, architects, 74, Hendford, Yeovil.

✱APRIL 21.—**Enfield, N.**—HOUSES.—Erection of 100 houses, for the U.D.C. Clerk to the Council, Public Offices, Enfield. Deposit £2 2s.

APRIL 21.—**Highworth.**—HOUSES.—Erection of six houses at South Marston and four at Inglesham, for the R.D.C. Mr. R. J. Beswick, architect, 10, Victoria-road, Swindon. Deposit, £1 1s.

APRIL 21.—**Manchester.**—CONVENIENCE.—Construction of a convenience at the Bowl House, Crumpsall Park, for the T.C. City Architect, Town Hall, Manchester. Deposit, 10s. 6d.

APRIL 21.—**Mere.**—HOUSES.—Erection of houses at Kilmington (6), Stourton (6), and Zeals (4), for the R.D.C. Mr. W. Alexander Harvey, F.R.I.B.A., 5, Bennett's-hill, Birmingham.

APRIL 21.—**Paulton.**—HOUSES.—Erection of 26 houses at Paulton, for the Clutton R.D.C. Messrs. Petter & Warren, Architects, 74, Hendford, Yeovil.

✱APRIL 21.—**Petersfield.**—Alterations and additions to the Cottage Hospital. Messrs. Young & Hall, 17, Southampton-street, Bloomsbury.

✱APRIL 22.—**Stroud.**—HOUSES.—Erection of six pairs of parlour type houses, at Woodcock-lane, Stonehouse, for the R.D.C. Mr. G. P. Milnes, architect, 1, King-street Parade, Stroud. Deposit, £2 2s.

APRIL 23.—**Chester-le-Street.**—ALTERATIONS.—Alterations and additions to Chester-le-Street Police Station, for the C.C. Mr. Albert E. Brookes, County Surveyor, Shire Hall, Durham.

APRIL 23.—**East Ham.**—HOUSES.—Erection of 16 houses based on the Ministry of Health's model form of Contract No. 8A, on the Central Site, under the Housing and Town-Planning Act, 1919, for the B.C. Borough Engineer, Mr. J. Birch, Town Hall, East Ham, E. 6. Deposit, £2 2s.

APRIL 23.—**Harrow.**—HOUSES.—Erection of 12 houses, for the U.D.C. Mr. J. P. Bennetts, Surveyor, Council Offices, Harrow-on-the-Hill. Deposit, £1.

APRIL 23.—**Hartlepool.**—HOUSES.—Erection of eight pairs of Class "A," various type cottages, at Greatham, for the R.D.C. Architect, Union Offices, Harr-road, West Hartlepool.

APRIL 23.—**London, W.**—PAINTING AND CLEANSING—Painting, cleansing, &c., of Guardians' Offices, Northumberland-street, W., and the Dispensary, 82 and 82A, East-street, W. For the Guardians of the Parish of St. Marylebone. Mr. H. Courtenay Constanting, 82, Mortimer-street, W.

APRIL 25.—**Armagh.**—HOUSES.—Erection of 10 houses with drainage, &c., for the U.D.C. Mr. James Lennon, Town Clerk, City Hall, Armagh. Deposit, £1 1s.

APRIL 25.—**Callington.**—ADDITIONS.—Alterations and additions to the Callington Cattle Market. Mr. C. Truscott, architect, Penaliva, Liskeard.

APRIL 25.—**Shipley.**—HOUSES.—Erection of 56 houses, of six types, at Hirst Wood, for the U.D.C. Architect, Council Offices, Somerset House, Shipley. Deposit £1.

✱APRIL 25.—**Watford.**—CONVERSION OF PREMISES.—Conversion of premises at Watford for a temporary Telephone Exchange. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W. Deposit, £1.

APRIL 25.—**York.**—HOUSES.—Construction of 120 houses on the Tang Hall site, for the T.C. Mr. F. W. Spurr, Architect, Guildhall, York. Deposit, £2 2s.

APRIL 26.—**Birmingham.**—HOUSES.—Erection of houses at Hurst-green, Halesowen, Birmingham, for the Commissioners of H.M.O.W. Town Clerk, Council House, Halesowen, and at H.M.O.W., King Charles-street, London, S.W.1.

APRIL 26.—**Halesowen.**—HOUSES.—Erection of houses at Hurst Green, Halesowen, Birmingham, for H.M. Commissioners of Works, Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W.1. Deposit, £1 1s.

APRIL 26.—**Llandaff.**—HOUSES.—Erection of 20 houses, for the U.D.C. Mr. J. Parry Williams, architect, Park House, 20, Park-place, Cardiff. Deposit £3 3s.

APRIL 26.—**Stepney.**—SUB-STATION.—Erection of a steel-frame and reinforced-concrete sub-station at Mile End Old Town, for the B.C. Borough Engineer (Mr. Bernard J. Belsher), Municipal Offices, 15, Great Alie-street, Whitechapel, E.1. Deposit, £1.

APRIL 27.—**Carlton, Nottingham.**—HOUSES.—Erection of 331 houses of various types for the U.D.C. Surveyor's Office, Manor-road, Carlton, Nottingham. Deposit £2.

APRIL 27.—**Edinburgh.**—WINDOW CASES.—Supply to Commissioners of H.M. Works, for window cases for the Museum of Antiquities, Edinburgh. Architect, H.M. Office of Works, 3, Parliament-square, Edinburgh. Deposit, £1 1s.

APRIL 27.—**Thedwastre.**—HOUSES.—Erection of eight cottages at Walsham-le-Willows, for the R.D.C. Messrs. Hunt & Coates, Architects, 51, Abbeygate-street, Bury St. Edmunds. Deposit, £3 3s.

APRIL 27.—**Westminster, S.W.1.**—PAINTING AND GENERAL REPAIRS.—Painting, distempering, general repairs and the erection of a sanitary annexe to the Infirmary in the Fulham-road, for the Guardians of the Westminster Union. Clerk to the Guardians, Guardians' Offices, Princes-row, Buckingham Palace-road, S.W.1.

APRIL 27.—**Westminster, S.W.**—WOOD BLOCK FLOORING.—Supplying and fixing wood block flooring for the Guardians of the Westminster Union Infirmary. Clerk to the Guardians, Guardians' Offices, Princes-row, Buckingham Palace-road, S.W.1.

APRIL 27.—**Woolwich.**—ALTERATIONS.—Alterations to operating room, &c., and the erection of two rooms in connection, at the Infirmary, Plumstead, for the Guardians of the Woolwich Union. Messrs. Whincop & Parnell, 42, William-street, Woolwich, S.E.18.

✱APRIL 28.—**Ashby-de-la-Zouch.**—HOUSES.—Erection of 46 houses of two types, 26 houses at Measham, and 20 houses at Oak Thorpe, for the R.D.C. Mr. W. B. Oxley, architect, 33, Friar-lane, Leicester. Deposit, £2 2s.

APRIL 28.—**Campden.**—HOUSES.—Erection of 12 cottages at Moreton-in-the-Marsh, for the R.D.C. Mr. H. E. Dicks, architect, Evesham. Deposit £2 2s.

✱APRIL 28.—**Ealing.**—HOUSES.—Erection of houses as under for the T.C. Contract No. 5, 30 houses; No. 6, 31 houses, ; No. 7, 24 houses. Mr. W. R. Hicks, A.M.Inst.C.E., Borough Engineer, Town Hall, Ealing, W.5. Deposit, £2 2s. for each contract.

APRIL 28.—**Isle of Thanet.**—HOUSES.—Erection of houses at Westgate-on-Sea; alternative tenders for 8 or 16; Birchington, 8 houses; Minster, 10 houses; and Acol, 4 houses, for the R.D.C. Mr. F. J. Cornford, M.S.A., Town Hall Buildings, Westgate-on-Sea. Deposit £2 2s.

APRIL 28.—**Moreton-in-Marsh.**—COTTAGES.—Erection of 12 cottages, for Campden R.D.C. Mr. Harold E. Dicks, M.S.A., architect, Evesham. Deposit, £2 2s.

APRIL 29.—**Barnet.**—HOUSES.—Erection in brick construction of 24 houses at Furzehill-road, Boreham Wood, and 20 houses at Watling-street, Elstree, for the R.D.C. Council Offices, Boreham Wood, or by appointment with the Surveyor. Deposit, £2 2s.

APRIL 29.—**London.**—SWING FRAMES.—Supply and erection of reinforced concrete swing frames and giant stride poles in the parks of the L.C.C. Chief Officer, Parks Department, 19, Charing Cross-road, W.C.2.

APRIL 29.—**Minehead.**—COTTAGES.—Erection of ten cottages for their housing scheme on their building site, Cher, Minehead, for the U.D.C. Mr. A. Douglas Barron, Architect, Engineer and Surveyor, Surveyor's Office, The Parade, Minehead. Deposit, £2 2s.

APRIL 29.—**St. Asaph (Flint).**—HOUSES.—Erection of 12 houses at Rhuddlan and 12 at St. Asaph, together with roads and sewers, for the R.D.C. Mr. E. Williams, Hiraddug Villa, Dyserth. Deposit, £3 3s.

APRIL 30.—**Auchtermuchty.**—HOUSES.—Erection of 10 houses (three and four apartments), for the T.C. Mr. Reginald Fairlie, architect, 14, Randolph-place, Edinburgh.

APRIL 30.—**Dunfermline.**—HOUSES.—Erection of 158 houses, for the T.C. Burgh Engineer, City Chambers, Dunfermline. Deposit, £2 2s.

APRIL 30.—**Stratford-on-Avon.**—HOUSES.—Erection of six houses at Eatington, two at Coppington, two at Fulbroke, eight at Hampton Lucy, two at Hatton Rock, two at Langley, eight at Loxley, and eight at Snitterfield, for the R.D.C. Mr. M. J. Harvey, architect, 50, Arden-street, Stratford-on-Avon. Deposit £1 1s.

✱APRIL 30.—**Tottington.**—HOUSES.—Erection of 28 houses, type A, in blocks of four, and 14 houses, type B, in blocks of two, for the U.D.C. Surveyor to the Council, Town Hall, Tottington, near Bury. Deposit, £1 1s.

✱MAY 2.—**Barrow-in-Furness.**—HOUSES.—Erection of 136 houses upon land at the junction of Ocean-road and Amphitrite-street. Borough Engineer and Surveyor, Town Hall.

✱MAY 2.—**Chichester.**—HOUSES.—Erection of four ouses to be built at Halnaker, for the Westhampnett R.D.C. Mr. John Dovaston, Council's Architect, Pallant House, Chichester.

✱MAY 3.—**Tredegar.**—HOUSES.—Erection of 162 brick-built houses, for the U.D.C. Mr. A. F. Webb, M.S.A., Tredegar Chambers, Blackwood, Mon. Deposit, £4

MAY 5.—**Ramsgate.**—HOUSES.—Erection and completion of 26 houses on the Dumpton-road site, for the Corporation. Mr. A. Blasdale Clarke, Town Clerk, Albion House, Ramsgate. Deposit £2 2s.

*MAY 7.—**Wood Green.**—HOUSES.—Erection of 92 houses for the U.D.C., on the White Hart-lane Estate. The Engineer and Surveyor to the Council, Town Hall, Wood Green. Deposit, £3 3s.

*MAY 10.—**Reading.**—POST OFFICE.—Erection of a new Post Office at Reading. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W.1. Deposit, £1 1s.

MAY 12.—**Mansfield.**—HOUSES.—Erection of 300 houses of various types or such proportion of that number as can be completed before July, 1922, at Bull Farm site, Chesterfield-road, in the said borough, for Borough Council. Mr. W. Thompson, Borough Engineer and Surveyor, Market-street, Mansfield, Deposit £2.

JUNE 30.—**Pulborough.**—COTTAGES.—Erection of 30 cottages in various parishes, for the R.D.C. Mr. Percy Ayling, Clerk to the Council, Council Offices, Storrington, Pulborough.

NO DATE.—**Thirsk.**—HOUSES.—Erection of 12 houses at Topcliffe and six at South Otterington, for the R.D.C. Mr. William Swarbreck, Clerk, Council Office, Finkle-street, Thirsk.

NO DATE.—**Ipswich.**—EXTENSION.—Extension of Duke-street subsection, for the T.C. Mr. F. Ayton, Engineer and Manager, Ipswich.

*NO DATE.—**Kingston-upon-Thames.**—HOUSES.—Erection of 12 houses for the Borough Council. Borough Surveyor, Town Clerk's Office, Kingston-upon-Thames. Deposit, £1 1s.

NO DATE.—**Paignton.**—HOUSES.—Demolition of farm buildings at Preston and the erection of eight parlour-type houses, for the U.D.C. Messrs. Appleton & Johnson, architects, 35, Torwood-street, Torquay. Deposit, £2 2s.

*NO DATE.—**Preston.**—HOUSES, &C.—Demolition of farm buildings and erection of eight parlour-type houses at Preston, for the Paignton U.D.C. Messrs. Appleton & Johnson, architects, 35, Torwood-street, Torquay; and "Hayes," Dartmouth-road, Paignton. Deposit, £2 2s.

## FURNITURE, MATERIALS, etc.

APRIL 16.—**Exeter.**—MATERIALS.—Supply of road material, hire of steam rollers, gravel and sand, lubricating oils, for the Devon C.C. Mr. Brian S. Miller, Clerk to the Castle of Exeter.

APRIL 16.—**Fareham.**—MACADAM.—Supply of granite, basalt, or other hard stone, to the R.D.C. Mr. J. F. Whitear, Surveyor, 16, Southampton-road, Fareham, Hants.

APRIL 18.—**Flintshire.**—FENCING.—Provide, cart, excavate for, erect and leave all complete, 9,000 yards of wire fencing at Marsh Farm, Sealand, for the Flint County Council Small Holding Committee. Mr. Henry A. Tilby, Clerk, County Offices, Mold.

APRIL 18.—**Glasgow.**—MATERIALS.—Supply of materials to the Electricity Department for four months. Mr. R. B. Mitchell, Engineer, 75, Waterloo-street, Glasgow.

APRIL 18.—**Peterborough.**—PIPES.—The Waterworks, &c., Committee of. Supply of various lengths and sizes of cast-iron pipes, to the T.C. Mr. W. H. A. Court, City Engineer, Broadway, Peterborough.

APRIL 18.—**Rochford.**—ROAD MATERIALS.—Supply of road materials, to the R.D.C. Mr. H. T. Sidwell, surveyor, Rayleigh, Essex.

APRIL 18.—**Tenterden.**—MATERIALS.—Supply of road materials to the T.C. Mr. W. L. Turner, Borough Surveyor, Tenterden.

APRIL 19.—**Ilkley.**—ROAD MATERIALS.—Supply of road materials, to the U.D.C. Mr. G. A. Waite, Surveyor, Town Hall, Ilkley.

APRIL 21.—**Gravesend.**—MATERIALS.—Supply of road materials, to the T.C. Mr. F. T. Grant, Borough Engineer, Gravesend.

APRIL 22.—**London.**—RAILWAY MATERIALS.—Supply to the Jamnagar Dwarka Railway Co., of (1) 2,000 (tons rails, 41½ lb. per yard, and 11,542 pairs fish-plates; 2) 48,450 fish-bolts; (3) 311,192 dog spikes. Messrs. Rendel, Palmer & Tritton, 13, Dartmouth-street, Westminster, S.W. 1. Charge £1 1s. each specification.

APRIL 25.—**London.**—STEEL WORK.—Supply of steel work for bridges (Reay-road Bridge), for the Great Indian Peninsula Railway Co. Mr. R. H. Walpole, Secretary, 48, Copthall-avenue, E.C. 2. Fee £1.

APRIL 26.—**London.**—HARDWARE, TUBES, ETC.—Supply to the Commissioners of H.M. Works (a) general hardware; (b) steam tubes and fittings. Controller of Supplies, H.M. Office of Works, &c., King Charles-street, Westminster, London, S.W. 1.

## ENGINEERING, IRON AND STEEL.

APRIL 18.—**London.**—TRAM RAILS.—Supply of 5,500 tons of standard steel girder tramway track rails, &c., for the L.C.C. Chief Engineer, County Hall, Spring Gardens, S.W. Deposit, £2.

APRIL 18.—**Montevideo.**—BRIDGE.—Construction of superstructure of bridge over the Santa Lucia River, for the Ministry of Public Works. Enquiry Office, Department of Overseas Trade, 35, Old Queen-st., S.W.

APRIL 18.—**Warrington.**—TANK.—Installation of a petrol storage tank at the Stores Depot, Howley-yard, for the T.C. Mr. A. M. Ker, Borough Engineer, Warrington.

APRIL 20.—**Bournemouth.**—BRIDGE.—Construction of reinforced concrete bridge, St. Stephen's-road, for the T.C. Mr. F. P. Dolamore, Borough Engineer, Municipal Offices, Bournemouth. Deposit £1 1s.

APRIL 21.—**Hong Kong.**—PUMPING MACHINERY.—For supply and setting to work at Taitam Tuk Works, Hong Kong, of vertical rotary steam pumping engine capable of lifting three million gallons per day a vertical height of 400 feet, two Lancashire boilers, superheaters, fuel economiser, feed pumps, pipe work, valves, and all accessories and auxiliary plant, for the Public Works Dept. Chief Engineer at the Offices of the Crown Agents for the Colonies, 4, Millbank, Westminster. Deposit, £5.

APRIL 22.—**Southowram.**—WALL.—Construction of a concrete retaining wall and subsoil drains on the Brighouse, Elland and Obelisk maid road, near the "Grove" Inn, in the Urban District of Southowram. Mr. H. R. Hepworth, West Riding Surveyor, County Hall, Wakefield. Deposit, £1.

APRIL 26.—**London, E.**—CONCRETE AND STEEL ERECTION.—Erection of a steel frame and reinforced concrete sub-station on a site known as Lomas Buildings, between Waley-street and Ben Jonson-road, Mile End Old Town. Borough Engineer, Municipal Offices, 15, Great Alie-street, Whitechapel, E.1.

APRIL 27.—**Easingwold.**—BOILER.—Supplying and fixing at the Union Workhouse, Easingwold, a 4-h.p. slow combustion vertical steam boiler, specially adapted for steam cooking, heating, and laundry work. Master of the Workhouse, Easingwold.

APRIL 28.—**Manchester.**—DOCK WORKS.—Construction of a reinforced concrete quay and the foundations for transit sheds at Trafford Wharf, Manchester Docks, for the Manchester Ship Canal. Chief Engineer (Mr. H. A. Reed, M.Inst.C.E.), 41, Spring-gardens, Manchester. Deposit, £2 2s.

MAY 1.—**Morocco.**—BRIDGE.—For the construction of a bridge over the River Sebou at Mechra-bel-Ksiri (Morocco), for account of the Compagnie Franco-Espagnole du Chemin de Fer de Tanger à Fez; the bridge to be six metres forty centimetres wide between parapets or railings, and to allow passage for a railway line as well as a road; the span to be not less than one hundred and twenty-five metres. L'Ingenieur-en-Chef de la Compagnie du Chemin de Fer de Tanger à Fez, Tangier, Morocco. Under registered cover before May 1. (Letters from the United Kingdom should be posted not later than April 24).

MAY 2.—**South Africa.**—GRAIN ELEVATORS.—Construction of (a) one terminal grain elevator at Cape Town, capacity 30,000 tons of 2,000 lbs.; (b) one terminal grain elevator at Durban, capacity 42,000 tons of 2,000 lbs.; (c) 34 country elevators ranging in capacity from 1,800 to 5,800 tons of 2,000 lbs. High Commissioner for the Union of South Africa, 32, Victoria-street, London. Deposit £100.

MAY 31.—**Bombay.**—WATER WORKS.—Construction of about 105 miles of steel and reinforced concrete pipe lines (from 72 in. to 57 in. diameter), and contingent works, for the Corporation. Messrs. Taylor & Sons, consulting engineers, 36, Victoria-street, Westminster, London, S.W. Deposit, £2 each specification (3).

JUNE 8.—**Clapton.**—PUMPING MACHINERY.—Supply and erection of pumping machinery at Lea Bridge, Clapton, N.E., for the Metropolitan Water Board. Chief Engineer's Department, 173, Rosebery-avenue, Clerkenwell, E.C.1. Deposit, £3 3s.

JUNE 15.—**Walton-on-Thames.**—PUMPING MACHINERY.—Supply and erection of pumping machinery near Walton-on-Thames, Surrey, for the Metropolitan Water Board. Mr. Henry E. Stilgoe, Chief Engineer, Offices, Rosebery-avenue, E.C. Deposit, £5.

JUNE 20.—**China.**—BRIDGE.—The Peking-Hankow Line (Chinese Government Railways) invites sealed proposals for designing and building a new steel bridge, about 2,800 metres in length, across the Yellow River (Hoangho). Plans, &c., by telegraph from the following offices: Peking-Hankow Railway, Peking, China; Chinese Legation, London; British Legation, Peking, China. Deposit £6.

NO DATE.—**Halifax.**—STEELWORK.—For structural steelwork and fire-proof roofing material required in the erection of a grandstand at Halifax. Messrs. Hinchliffe & Co., Architects, Tower Chambers, Halifax.

NO DATE.—**Thorney.**—WATER PIPES.—Supply to the Thorney Drainage Board of pipes, specials, &c., for extension of water supply to Thorney. Mr. H. R. Brodie, Clerk, Thorney, near Peterborough.

## ROAD, SANITARY, AND WATER WORKS.

APRIL 18.—**Blaydon.**—ROADS.—Construction of streets and sewers at Chepwell in connection with housing scheme of the U.D.C. Council's Surveyor, Blaydon. Deposit £1 1s.

APRIL 18.—**Chelmsford.**—WATER MAINS.—Supply and laying of water mains on the Boarded Barns housing site, for the T.C. Mr. E. J. Miles, Borough Engineer, Chelmsford.

APRIL 18.—**Hatfield.**—SEWERAGE WORKS.—Construction of sewage disposal works at Welham Green, for the R.D.C. Surveyor, Council Offices, Hatfield. Deposit £5.

APRIL 18.—**Seaton Delaval.**—SEWERS, ETC.—Laying of sewers and the making of roads in connection with housing schemes at Seaton Delaval, New Hartley, and Seaton Sluice, for the U.D.C. Mr. Anthony Dorin, Surveyor, Council Chambers, Seaton Delaval.

APRIL 18.—**Worthing.**—TENNIS COURTS.—Supplying and laying of suitable surfacing material for two hard lawn tennis courts, for the T.C. Borough Surveyor, Municipal Offices, Liverpool-road, Worthing.

APRIL 19.—**Edmonton.**—TAR PAVING.—Tar paving to roads at the Institutions at Edmonton, for the Board of Guardians. Clerk of Guardians, 77, Bridport-road, Edmonton, N. 18.

APRIL 19.—**London.**—ROADS.—Paving the carriageways and footways of the undermentioned streets with Sicilian natural rock asphalt. Carriageways:—Leadenhall-street (Creechurch-lane to Gracechurch-street), Poultry and Cheapside (to King-street). Princes-street. York footways to be asphalted:—Fore-street (south side), Aldgate High-street (Aldgate-avenue to Middlesex-street), Giltspur-street (west side), Wood-street (part of), Basinghall-street (part of), for the City Council. City Engineer, Guildhall, E.C. 2.

APRIL 19.—**Nottingham.**—CLEARING SITE.—For pulling down and clearing site, 12 and 14, Southwell-road, for the T.C. Estates Surveyor, Guildhall, Nottingham. Deposit, £1.

APRIL 20.—**Maidstone.**—TAR SPRAYING.—For tar spraying 168,000 super yards of roads, for the R.D.C. Mr. T. A. Busbridge, Surveyor, Council Office, King-street, Maidstone.

APRIL 20.—**Worthley.**—SEWERS.—Construction of certain works of sewage disposal at the Tankersley Sewage Farm, Tankersley, nr. Barnsley, for the R.D.C. Mr. F. Thurlby, Surveyor, Grenoside, nr. Sheffield. Deposit, £2 2s.

APRIL 21.—**Wandsworth.**—WOOD BLOCK PAVING.—Laying wood block paving to road at St. James' Hospital, Ouseley-road, Balham, S.W. 12, for the Guardians of the Wandsworth Union. Mr. F. J. Curtis, Clerk, Union Offices, St. John's Hill, Wandsworth, S.W. 18. Deposit, £2.

APRIL 25.—**Baildon.**—WATERMAIN.—Supplying and laying of 6 in. cast-iron pipes for a watermain of a length of 300 yds., in Otley-road, for the U.D.C. Mr. J. N. Nicholson, 19, Tanfield Chambers, Bradford. Deposit, £1 1s.

*APRIL 29.—**Rhuddlan and St. Asaph.**—HOUSES, ROADS AND SEWERS.—Construction of roads and sewers and erection of twelve houses in Rhuddlan and twelve in St. Asaph, for St. Asaph (Flint) R.D.C. Mr. Edward Williams, Hiraddug Villa, Dyserth. Deposit, £3 3s.

APRIL 30.—**Cardiganshire.**—ROADS.—For the raising of the level of the road, construction of a new bridge, and retaining walls, and the taking down of the existing bridge at Pontrhyd, between Llanarth and Aberayron, for the Cardiganshire C.C. Mr. John Davies, County Surveyor, Henllan, Cardiganshire.

APRIL 30.—**Morley.**—LAY-OUT.—Formation of garden paths, erection of fencing, surfacing of main streets and footpaths, etc., in connection with housing scheme of the T.C. Mr. F. Turner, Borough Engineer, Town Hall, Morley.

MAY 2.—**Portsmouth.**—SEWAGE DISPOSAL.—Supply and erection o itwo sets of sewage screens and raking apparatus, two detritus dredgers, penstocks, &c., for the T.C. Mr. G. Midgley Taylor, Civil Engineer, 36, Victoria-street, S.W.1. Deposit, £5.

MAY 5.—**Stalybridge, &c.**—SEWERAGE WORKS.—Construction of buildings, completion of tanks and filters, drainage, and other works, at the Sewage Disposal Works, Bradley Hurst, Dukinfield, for the Stalybridge and Dukinfield Joint Sewerage Board. Mr. Chas. J. Lomax, Engineer, 37, Cross-street, Manchester. Deposit, £3 3s.

NO DATE.—**Whitburn.**—ROADS, ETC.—Formation of roads, sewers, and water mains in connection with the housing scheme of the T.C. Mr. Alex. Henderson, Town Clerk, Whitburn.

## Auction Sales, Tenders, etc.

*APRIL 20.—**London, S.W.**—Messrs. Veryard & Yates, F.A.I. will sell by auction at 255, Clapham-road, S.W., about 150 standard best quality imported timber and building materials. Auctioneers, 365, Norwood-road, S.E.27.

APRIL 20.—**Wandsworth Common.**—Messrs. Green & Son will sell by auction, by direction of the Disposal Board, corrugated iron buildings and huts, at 3rd London General Hospital. Auctioneers, 72, King-street, Hammersmith, W. 6.

*APRIL 27.—**Sydenham.**—Messrs. Bromley & Co. will sell, at Winchester House, Old Broad-street, E.C., ideal freehold building sites for residential purposes situate South Sydenham Park, Forest Hill, S.E. Auctioneers, 5, London-road, Forest Hill, S.E. 23.

*APRIL 28.—**London, W. 1.**—Messrs. Knight, Frank & Rutley will sell by auction the Freehold Modern Residence, "Oaklands," Surrey, within a few minutes of Kenley Station. A plot of land with stabling and 3 cottages, area 2¼ acres. And Kenley Park Estate, including bungalow, three cottages and "Garston Hall," area 50 acres—in the Hanover-square Estate Room. Auctioneers, 20, Hanover-square, London, W.1.

MAY 12.—**London, W.**—Messrs. Knight, Frank & Rutley will sell by auction in the Hanover-square Estate Room the freehold residential property, "Marshal's Wick," St. Albans, standing in the centre of timbered park. The whole extending to about 178 acres. Auctioneers, 20, Hanover-square, W. 1.

## Competitions.

(*See Competition News, page* 466.)

## Public Appointments.

*APRIL 22.—**Sutton (Surrey).**—Clerk of Works required by the U.D.C. in connection with housing scheme. Mr. H. Bolton, Solicitor, Municipal Offices, Sutton.

*APRIL 25.—**Farnborough.**—Clerk of Works required by the R.D.C. Mr. Arthur Fairfax, Clerk to the Council, Bridge-street, Banbury.

APRIL 25.—**St. Marylebone.**—Sewers and drainage works superintendent required by the Met. Borough Council. Mr. James Wilson, Town Clerk, Town Hall, Marylebone-road, N.W.1.

*APRIL 27.—**Ministry of Agriculture and Fisheries.**—ARCHITECTS.—Three district architects required in the Ministry's Land Department. Secretary, Ministry of Agriculture and Fisheries, 10, Whitehall-place, S.W. 1.

APRIL. — **London, N.** — Required in April an Assistant Master (part time) for practical plumbing and sanitation, with possible full time. Mr. H. P. Shallard, The Polytechnic, N. 15.

MAY 2. — **Durham.** — ASSISTANT ARCHITECT.—Required by the County Council. County Education Architect, 34, Old Elvet, Durham.

*NO DATE.—**Nigeria.**—FOREMAN OF WORKS.—Foreman of Works required for service on the Nigerian Government Railways for two tours each of twelve months to eighteen months with possible permanency. Apply at once, Crown Agents for the Colonies, 4, Millbank, London, S.W. 1, quoting M/10794.

# PRICES CURRENT OF MATERIALS.*

**[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry. Since our last issue, Lead and Oils and Turps prices have been revised.—Ed.]**

## BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge. £ s. d.

Best Stocks ..... 5 1 6

Per 1000, Delivered at London Goods Stations.

| | £ s. d. | | £ s. d. |
|---|---|---|---|
| Flettons ..... | 3 17 0 | Best Blue Pressed Staffordshire ... | 12 4 0 |
| Best Stourbridge Fire bricks ..... | 12 14 0 | Do. Bullnose ... | 12 14 0 |
| | | Blue Wire Cuts | 10 6 6 |
| GLAZED BRICKS— | | | |
| Best White, Ivory, and Salt Glazed Stretchers .. | 29 10 0 | D'ble Str'tch'rs | 38 0 0 |
| | | D'ble Headers | 35 0 0 |
| Headers..... | 29 0 0 | One Side and two Ends .. | 30 0 0 |
| Quoins, Bullnose and 4½in. Flats ..... | 36 0 0 | Two Sides and one End .... | 40 0 0 |
| | | Splays and Squints..... | 37 10 0 |

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

| | s. d. | | |
|---|---|---|---|
| Thames Ballast ..... | 18 6 | per yard, | delivered 2 miles radius Paddington. |
| Pit Sand ..... | 24 0 | " " | |
| Thames Sand ..... | 25 0 | " " | |
| Best Washed Sand ..... | 25 0 | " " | |
| ¾ in. Shingle for Ferro-Concrete ..... | 24 6 | " " | |
| ½ in. " " | 25 6 | " " | |

Per ton, delivered in London area.

| | £ s. d. | | £ s. d. |
|---|---|---|---|
| Best Portland Cement ..... | 4 7 6 | .. | 4 13 0 |

80/6 alongside at Vauxhall in 80-ton lots.

Ferrocrete per ton extra on above .. .. 10 0

Best Ground Blue Lias Lime £3 12 6 at rly. depot.

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks. The sacks are charged at 2s. 6d. each and credited at 2s. each if returned in good condition within three months.

Grey Stone Lime ..... 75s. 0d. per ton delivered.

Stourbridge Fireclay in s'cks 44s. 8d. per ton at rly. dpt.

## STONE.

| | s. d. |
|---|---|
| BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube..... | 3 2½ |
| Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R., per ft. cube ..... | 3 5½ |
| Do. do. delivered on road wagons at Nine Elms Depot ..... | 3 6½ |
| PORTLAND STONE— Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L. & S.W.R., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube ..... | 4 11½ |
| Do. do. delivered on road wagons at above stations, per ft. cube.. ..... | 5 0½ |
| White basebed, 3d. per ft. cube extra. | |
| NOTE.—½d. ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft. | |
| YORK STONE, BLUE—*Robin Hood Quality.* Delivered at any Goods Station London. | s. d. |
| Scappled random blocks .....Per Ft. Cube | 16 0 |
| 6 in. sawn two sides landings to sizes (under 30 ft. super.) .....Per Ft. Super | 10 0 |
| 6 in. rubbed two sides, ditto ..... " | 11 2 |
| 3 in. sawn two sides slabs (random sizes) " | 4 4 |
| 2 in. to 2½ in. sawn one side slabs (random sizes) ..... " | 2 8 |
| 1½ in. to 2 in. ditto, ditto ..... " | 2 3 |
| HARD YORK— Delivered at any Goods Station London. | |
| Scappled random blocks .....Per Ft. Cube | 10 3 |
| 6 in. sawn two sides landing to sizes (under 40 ft. super.) .....Per Ft. Super | 9 6 |
| 6 in. rubbed two sides ditto ..... " | 11 6 |
| 4 in. sawn two sides slabs (random sizes) " | 5 6 |
| 3 in. ditto, ditto " | 4 6 |
| 2 in. self-faced random flags ..Per Yard Super | 13 6 |

## WOOD.

### GOOD BUILDING DEAL.

| Inches | £ s. | |
|---|---|---|
| 4 × 11 ..... | 65 0 | per standard |
| 4 × 9 ..... | 60 0 | " |
| 4 × 8 ..... | 50 0 | " |
| 4 × 7 ..... | 48 0 | " |
| 3 × 8 ..... | 40 0 | " |
| 3 × 7 ..... | 38 0 | " |
| 2½ × 7 ..... | 38 0 | " |
| 3 × 6 ..... | 36 0 | " |
| 3 × 11 ..... | 62 0 | " |
| 2 × 11 ..... | 62 0 | " |
| 3 × 9 ..... | 58 0 | " |
| 2½ × 9 ..... | 58 0 | " |
| 3 × 4½ ..... | 38 0 | " |
| 3 × 4 ..... | 34 0 | " |

### PLANED BOARDS.

| | | |
|---|---|---|
| 1 × 11 ..... | 66 0 | " |
| 1 × 9 ..... | 59 0 | " |

### PLAIN EDGE FLOORING.

| Inches | | |
|---|---|---|
| ¾ ..... | 35/- | per square |
| ⅞ ..... | 38/- | " |
| 1 ..... | 42/- | " |
| 1¼ ..... | 52/- | " |
| 1½ ..... | 62/- | " |

### TONGUED AND GROOVED FLOORING.

| Inches | | |
|---|---|---|
| 1 ..... | 42/6 | per square |
| 1¼ ..... | 52/6 | " |
| 1½ ..... | 62/6 | " |

## WOOD (*Continued*).

### MATCHINGS (BEST).

| Inches | | |
|---|---|---|
| ¾ ..... | 30/- | per square |
| ⅞ ..... | 36/- | " |
| 1 ..... | 42/- | " |

### BATTENS.

| Inches | s. d. | |
|---|---|---|
| ¾ × 2 ..... | 4 6 | per 100 ft. |

### SAWN LATHS.

Per bundle ..... 0 4 0

| | | | | | |
|---|---|---|---|---|---|
| Dry Wainscot Oak, per ft. super, as inch ..... | 0 3 6 | to | 0 4 0 | | |
| ¼ in. do. do. | 0 2 0 | .. | — | | |
| Dry Mahogany—Honduras, Tabasco, African, per ft. super, as inch .... | 0 2 6 | to | 0 3 0 | | |
| Cuba Mahogany ..... | 0 4 0 | to | 0 4 6 | | |
| Teak (Rangoon, Moulmein or Java), per load.. .. | 75 0 0 | to | 85 0 0 | | |
| American Whitewood planks, per ft. cube .. | 0 18 0 | to | 1 4 0 | | |
| Best Scotch Glue, per cwt. | 10 0 0 | .. | — | | |
| Liquid Glue, per cwt..... | 5 8 0 | .. | 6 15 0 | | |

## SLATES.

1st quality slates from Bangor or Portmadoc in truck load delivered London area. Per 1,000 of 1,200.

| | | £ s. d. |
|---|---|---|
| Best Blue Bangor Slates, | 24 by 12 ..... | 56 10 0 |
| " " | 22 by 12 ..... | 46 0 0 |
| First quality " " | 22 by 11 ..... | 42 10 0 |
| " " | 20 by 12 ..... | 42 0 0 |
| Best Blue Portmadoc | 20 by 10 ..... | 36 10 0 |
| " " | 18 by 10 ..... | 29 10 0 |
| First quality " | 18 by 9 ..... | 24 5 0 |
| " " | 16 by 10 ..... | 22 15 0 |
| " " | 16 by 8 ..... | 18 0 0 |

## TILES.

| | Per 1,000 f.o.r. London. £ s. d. |
|---|---|
| Best machine-made tiles from Broseley or Staffordshire district..... | 7 15 0 |
| Ditto hand-made ditto..... | 8 10 0 |
| Ornamental ditto ..... | 7 7 6 |
| Hip and valley tiles (per dozen) ..... | 0 15 0 |

## METALS.

| JOISTS, GIRDERS, &c., TO LONDON STATION PER TON— | £ s. d. |
|---|---|
| R. S. Joists, cut and fitted ..... | 28 0 0 |
| Plain Compound Girders ..... | 30 0 0 |
| " Stanchions ..... | 32 0 0 |
| In Roof Work ..... | 36 0 0 |

WROUGHT-IRON TUBES AND FITTINGS—

(Discount off List for lot of not less than £15 net value delivered direct from works. 5 per cent. less above gross discounts, carriage forward if sent from London stocks.)

| | Tubes. ¼" to 2". | Tubes. 2¼" to 6". | Fittings. ¼" to 2". | Fittings. 2¼" to 6". |
|---|---|---|---|---|
| Gas..... | —10 | —15 .. | —17½ | —25 |
| Water .... | Net | — 6½ .. | —12½ | —22½ |
| Steam .... | +11½ | + 3½ .. | — 7½ | —20 |
| Galv'd Gas | +10 | + 5 .. | —10 | —17½ |
| " Water | +22½ | +16½ .. | — 5 | —15 |
| " Steam | +35 | +27½ .. | Net | —12½ |

L.C.C. COATED SOIL PIPES—London Prices ex works.

| | Pipe. s. d. | | Bends, stock angles. s. d. | | Branches, stock angles. s. d. |
|---|---|---|---|---|---|
| 2 in. per yd. in 6 fts.. | 6 4 | .. | 4 6 | .. | 5 5 |
| 2½ in. " .. | 7 3½ | .. | 4 11½ | .. | 6 9 |
| 3 in. " .. | 9 0½ | .. | 5 5 | .. | 8 1 |
| 3½ in. " .. | 10 0 | .. | 6 9 | .. | 9 5½ |
| 4 in. " .. | 10 11½ | .. | 7 8 | .. | 10 9½ |

RAIN-WATER PIPES, &c.

| | Pipe. s. d. | | Bends, stock angles. s. d. | | Branches, stock angles. s. d. |
|---|---|---|---|---|---|
| 2 in. per yd. in 6fts. plain | 5 6 | .. | 3 2 | .. | 4 0 |
| 2½ in. " " .. | 6 0 | .. | 3 6 | .. | 4 10 |
| 3 in. " " .. | 7 3 | .. | 4 4 | .. | 5 6 |
| 3½ in. " " .. | 8 9 | .. | 5 2 | .. | 7 6 |
| 4 in. " " .. | 9 9 | .. | 6 3 | .. | 9 3 |

L.C.C. DRAIN PIPES,—9 ft. lengths. London Prices per yd.: 4 in., 13/-. .. 5 in., 16/6. .. 6 in., 19/11.

| | Per ton in London. £ s. d. | | £ s. d. |
|---|---|---|---|
| IRON— Common Bars ..... | 27 10 0 | to | 28 10 0 |
| Staffordshire Crown Bars good merchant quality | 28 0 0 | .. | 29 0 0 |
| Staffordshire "Marked Bars" ..... | 30 10 0 | .. | 32 10 0 |
| Mild Steel Bars ..... | 24 0 0 | .. | 26 0 0 |
| Steel Bars. Ferro-Concrete quality, basis price .. | 24 0 0 | .. | 26 0 0 |
| Hoop Iron, basis price .. | 31 0 0 | .. | 33 0 0 |
| " Galvanised .. | 46 0 0 | .. | 48 0 0 |
| Soft Steel Sheets, Black— Ordinary sizes to 20 g. | 30 0 0 | .. | 32 0 0 |
| " " " 24 g. | 31 0 0 | .. | 33 0 0 |
| " " " 26 g. | 33 0 0 | .. | 34 0 0 |
| Sheets Flat Best Soft Steel, C.R. & C.A. quality— Ordinary sizes, 6ft. by 2ft. to 3ft. to 20 g. | 38 0 0 | .. | 39 0 |
| Ordinary sizes, 6ft. by 2ft. to 3ft. to 22 g. and 24 g..... | 39 0 0 | .. | 41 0 0 |
| Ordinary sizes, 6ft. by 2ft. to 3ft. to 26 g... | 41 0 0 | .. | 43 0 0 |
| Flat and Galvanised Corrugated Sheets— Ordinary sizes, 6 ft. to 9ft. 20 g. ..... | 29 0 0 | .. | 30 0 0 |

## METALS (*Continued*).

| | Per ton in London. £ s. d. | | £ s. d. |
|---|---|---|---|
| Ordinary sizes, 6ft. to 9ft. 22 g. and 24 g. | 30 0 0 | .. | 31 0 0 |
| Ordinary sizes, 6ft. to 9ft. 26 g. ..... | 32 0 0 | .. | 34 0 0 |
| Sheets Galvanised Flat, Best quality— Best Soft Steel Sheets, 6ft. by 2ft. to 3ft. to 20g. and thicker .. | 38 0 0 | | 39 0 0 |
| Best Soft Steel Sheets, 22 g. and 24 g. .... | 39 0 0 | .. | 40 0 0 |
| Best Soft Steel Sheets, 26 g. ..... | 40 0 0 | .. | 41 0 0 |
| Cut Nails, 3in. to 6in. .. (under 3in. usual trade extras.) | 33 0 0 | .. | 34 0 0 |

### LEAD, &c.

| | Delivered in London. £ s. d. | | £ s. d. |
|---|---|---|---|
| LEAD Sheet, English, 4 lb. and up ..... | 34 10 0 | — | — |
| Pipe in coils ..... | 35 0 0 | .. | — |
| Soil Pipe ..... | 37 10 0 | .. | — |
| Compo pipe ..... | 38 10 0 | .. | — |

NOTE—Country delivery, 30s. per ton extra; lots under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra.

| | | | |
|---|---|---|---|
| Old lead, ex London area, at Mills ..... per ton | 17 0 0 | .. | — |
| Do., ex country, carriage forward..... per ton | 16 0 0 | — | — |
| COPPER— Strong Sheet ....per lb. | 0 2 8 | — | — |
| Thin " .... " | 0 2 4 | .. | — |
| Copper nails .... " | 0 2 3 | .. | — |
| Copper wire .... " | 0 2 4 | — | — |
| TIN—English Ingots " | 0 1 9 | .. | — |
| SOLDER—Plumbers' " | 0 0 11 | .. | — |
| Tinmen's..... " | 0 1 2 | .. | — |
| Blowpipe ..... " | 0 1 4 | .. | — |

### GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES AND IN SQUARES IN ORDINARY SIZES.

| | Per Ft. | | Per Ft. |
|---|---|---|---|
| 15 oz. fourths .... | 4½d. | 32 oz. fourths .... | 10½d. |
| " thirds ..... | 5d. | " thirds ..... | 1/- |
| 21 " fourths .... | 6½d. | Fluted, Obscured and Enamelled Sheet. | |
| " thirds ..... | 7½d. | | |
| 26 " fourths .... | 8d. | 15 oz. | 7d. |
| " thirds ..... | 9½d. | 21 " | 9d. |

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

| | Per Ft. |
|---|---|
| ⅛ Rolled plate ..... | 5½d. |
| ¼ Rough rolled ..... | 6½d. |
| ⅜ Rough rolled ..... | 7½d |
| Figured Rolled, Oxford Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish white ..... | 7½d. |
| Ditto, tinted ..... | 9½d. |
| Rolled Sheet ..... | 6½d. |
| White Rolled Cathedral..... | 6½d. |
| Tinted do. ..... | 7½d. |

Cast Plate is ½d. extra on the price of rough rolled.

### PAINTS, &c.

| | | £ s. d. |
|---|---|---|
| Raw Linseed Oil | in pipes..... per gallon | 0 2 7 |
| " " " | in barrels .... " | 0 2 8 |
| " " " | in drums .... " | 0 2 9 |
| Boiled " " | in barrels .... " | 0 3 0 |
| " " " | in drums .... " | 0 3 2 |
| Turpentine | in barrels ..... " | 0 4 6 |
| " | in drums (10 gall.) .. .. | 0 4 9 |
| Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.) | | 58 10 0 |
| GENUINE WHITE LEAD PAINT— "Father Thames," "Nine Elms," "Park." "Supremus" and other best brands (in 14 lb. tins) not less than 5 cwt. lots .....per ton delivered | | 70 10 0 |
| Red Lead, Dry (packages extra) .. | per ton | 42 0 0 |
| Best Linseed Oil Putty ..... | per cwt. | 0 19 0 |
| Filocol..... | per cwt. | 0 18 0 |
| Size. X D Quality..... | fkn. | 0 5 0 |

### VARNISHES, &c.

| | | Per gallon. £ s. d. |
|---|---|---|
| Oak Varnish..... | Outside | 0 15 0 |
| Fine ditto ..... | ditto | 0 17 2 |
| Fine Copal ..... | ditto | 1 1 6 |
| Pale Copal ..... | ditto | 1 2 6 |
| Pale Copal Carriage ..... | ditto | 1 4 6 |
| Best ditto ..... | ditto | 1 14 6 |
| Floor Varnish..... | Inside | 0 19 0 |
| Fine Pale Paper ..... | ditto | 0 18 0 |
| Fine Copal Cabinet ..... | ditto | 1 2 6 |
| Fine Copal flatting ..... | ditto | 1 0 6 |
| Hard drying Oak ..... | ditto | 0 18 0 |
| Fine Hard drying Oak ..... | ditto | 0 19 0 |
| Fine Copal Varnish ..... | ditto | 1 0 6 |
| Pale ditto ..... | ditto | 1 2 6 |
| Best ditto ..... | ditto | 1 14 6 |
| Best Japan Gold Size..... | | 0 12 6 |
| Best Black Japan ..... | | 0 18 0 |
| Oak and Mahogany Stain (water) .... .. | | 0 17 6 |
| Brunswick Black ..... | | 0 11 9 |
| Berlin Black..... | | 0 16 6 |
| Knotting (patent) ..... | | 1 18 0 |
| French and Brush Polish ..... | | 1 8 0 |
| Liquid Dryers in Terebine ..... | | 0 13 6 |
| Cuirass Black Enamel ..... | | 0 7 0 |

* The information given on this page has been specially compiled for THE BUILDER and is copyright. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

# CURRENT PRICES FOR BUILDING WORK IN LONDON.*

## EXCAVATOR.

| | | s. | d. |
|---|---|---|---|
| Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep | per yard cube | 2 | 0 |
| Add if in clay | " " | 2 | 0 |
| Add for every additional depth of 6 ft. | " " | 1 | 6 |
| Planking and strutting to trenches | per foot super | 0 | 7½ |
| Do. to sides of excavation, including shoring | " " | 1 | 6 |

## CONCRETOR.

| | | s. | d. |
|---|---|---|---|
| Portland cement concrete in foundation 1 to 6 | per yard cube | 55 | 0 |
| Add if in underpinning in short lengths | " " | 10 | 0 |
| Add if in floors 6 in. thick | " " | 4 | 0 |
| Add if in beams | " " | 5 | 0 |
| Add if aggregate 1 : 2: 4 | " " | 15 | 0 |
| Add for hoisting not exceeding 10 ft. beyond the first 10 ft. | " | 4 | 6 |

## BRICKLAYER.

| | | £ | s | d. |
|---|---|---|---|---|
| Reduced brickwork in lime mortar and Fletton bricks | per rod | 5 | 15 | 0 |
| Add if in stocks | " | 12 | 10 | 0 |
| Add if in Staffordshire blues | " | 34 | 10 | 0 |
| Add if in Portland cement and sand | " | 4 | 15 | 0 |

### FACINGS.

| | | | | |
|---|---|---|---|---|
| Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks | per ft. super | 0 | 0 | 1½ |

### POINTING.

| | | | | |
|---|---|---|---|---|
| Neat flat struck or weathered joint | " " | 0 | 0 | 3½ |

### ARCHES.

| | | | | |
|---|---|---|---|---|
| Extra only to the price of ordinary brickwork :— | | | | |
| Fair external in half brick rings | " " | 0 | 1 | 0 |
| Axed in stocks | " " | 0 | 2 | 0 |
| Rubbed and gauged jointed in putty camber or segmental | " " | 0 | 7 | 0 |

### SUNDRIES.

| | | | | |
|---|---|---|---|---|
| Damp course in double course of slates breaking joint and bedded in Portland cement | " " | 0 | 1 | 8 |
| Setting ordinary register grates and stoves | each | 1 | 5 | 0 |
| Setting kitchener, including forming flues, &c., with all necessary fire bricks | | 6 | 15 | 0 |

## ASPHALTER.

| | | s. | d. |
|---|---|---|---|
| Half-inch horizontal damp course | per yard sup. | 9 | 0 |
| Three-quarter-inch vertical damp course | " " | 14 | 3 |
| One inch on flats in two thicknesses | " " | 12 | 0 |
| Angle fillet | per foot run | 0 | 3 |
| Skirting and fillet 6 in. high | " " | 1 | 6 |

## MASON.

| | | s. | d. |
|---|---|---|---|
| York stone templates fixed | per foot cube | 22 | 0 |
| York stone sills fixed | " " | 35 | 0 |
| Bath stone and all labour fixed | " " | 16 | 9 |
| Portland stone fixed | " " | 26 | 0 |

## SLATER.

| | | s. | d. |
|---|---|---|---|
| Welsh 16 in. × 8 in. 3 in. lap, including nails | per square | 98 | 0 |
| Do. 20 in. × 10 in. Do. Do. | " | 115 | 0 |
| Do. 24 in. × 12 in. Do. Do. | " | 117 | 6 |

## CARPENTER AND JOINER.

| | | s. | d. |
|---|---|---|---|
| Fir framed in plates | per foot cube | 9 | 0 |
| Do. joists | " " | 10 | 0 |
| Do. roofs, floors and partitions | " " | 11 | 3 |
| Do. trusses | " " | 13 | 6 |

| | | ¾" | 1" | 1¼" | 1½" |
|---|---|---|---|---|---|
| Deal rough close boarding | per sq. | 60/- | 81/- | 100/- | 108/- |

| | | s. | d. |
|---|---|---|---|
| Flat centering for concrete floor, including struts or hangers | " | 68 | 0 |
| Do. to beams | per ft. sup. | 1 | 10 |
| Centres for arches | " | 2 | 4 |
| Gutter boards and beams | " | 1 | 9 |

### FLOORING.

| | | ¾" | 1" | 1¼" | 1½" |
|---|---|---|---|---|---|
| Deal-edges shot | per sq. | | 82/- | 104/- | 120/- |
| Do. tongued and grooved | " | | 88/- | 110/- | 127/- |
| Do. matchings | " | 74/- | 89/- | | |
| Moulded skirting, including backings and grounds | per ft. sup. | 2/4 | 2/8 | 3/2 | 3/8 |

### SASHES AND FRAMES.

| | | s. | d. |
|---|---|---|---|
| One-and-a-half moulded sashes or casements | per foot super | 2 | 0 |
| Two Do. Do. Do. | " " | 2 | 6 |
| Add for fitting and fixing | " " | 0 | 6 |
| Deal-cased frames with 1 in. inner and outer linings, 1¼ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares double hung, double hung with pulleys, lines and weights ; average size | " " | 5 | 6 |

### DOORS.

| | | 1¼" | 1¾" | 2" |
|---|---|---|---|---|
| Two-panel square framed | per ft. sup. | 2/8 | 2/11 | 3/1 |
| Four-panel Do. | " | 3/- | 3/4 | 3/7 |
| Two-panel moulded both sides | " | 3/4 | 3/7 | 3/10 |
| Four-panel Do. Do. | " | 3/8 | 3/11 | 4/2 |

## CARPENTER AND JOINER—continued.

### FRAMES.

| | | s. | d. |
|---|---|---|---|
| Deal wrot moulded and rebated | per foot cube | 22 | 0 |

| | | 1" | 1¼" | 1½" |
|---|---|---|---|---|
| Plain deal jamb linings framed | per ft. sup. | 2/3 | 2/5 | 2/9 |
| Deal shelves and bearers | " | 2/- | 2/2 | 2/3 |
| Add if cross tongued | " | 2d. | 2d | 2d. |

### STAIRCASES.

| | | 1" | 1¼" | 1½" | 2" | 2½" |
|---|---|---|---|---|---|---|
| Deal treads and risers in and including rough brackets | | 3/4 | 4/- | 4/8 | — | — |
| Deal strings wrot in both sides and framed | " | 4/6 | 4/9 | — | — | — |

| | | s. | d. |
|---|---|---|---|
| Housings for steps and risers | each | 1 | 0 |
| Deal balusters, 1 in. × 1¼ in. | per ft. run. | 0 | 9 |
| Mahogany handrail ; average 3 in. × 3 in. | " " | 6 | 3 |
| Add if ramped | " " | 12 | 6 |
| Add if wreathed | " " | 25 | 0 |

### FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

| | | | |
|---|---|---|---|
| 6 in. barrel bolts | 9d. | Rim locks | 2/6 |
| Sash fasteners | 1/- | Mortice locks | 5/6 |
| Casement fasteners | 1/6 | Patent spring hinges and letting in to floor and making good | 20/- |
| Casement stays | 1/3 | | |
| Cupboard locks | 1/6 | | |

## FOUNDER AND SMITH.

| | | s. | d. |
|---|---|---|---|
| Rolled steel joists | per cwt. | 32 | 0 |
| Plain compound girders | " | 36 | 0 |
| Do. stanchions | " | 39 | 0 |
| In roof work | " | 43 | 0 |

## RAIN-WATER GOODS.

| | | 3" | 4" | 5" | 6" |
|---|---|---|---|---|---|
| Half-round plain rebated joints | ft. run | 2/- | 2/6 | 3/9 | 4/3 |
| Ogee Do. Do. | " | 2/6 | 3/3 | 4/- | 5/- |
| Rain-water pipes with ears | " | 2/11 | 3/9 | | |
| Extra for shoes and bends | each | 4/7 | 6/3 | | |
| Do. stopped ends | " | 2/- | 2/6 | 3/9 | 4/3 |
| Do. nozzles for inlets | " | 2/3 | 2/9 | 4/- | 4/6 |

## PLUMBER.

| | | s. | d. |
|---|---|---|---|
| Milled lead and laying in flashings and gutters | per cwt. | 61 | 0 |
| Do. Do. in flats | " | 56 | 0 |
| Extra labour and solder in coated cesspools | each | 7 | 9 |
| Welt joint | per ft. run. | 0 | 6 |
| Soldered seam | " " | 2 | 1 |
| Copper nailing | " | 0 | 8 |

| | | ½" | ¾" | 1" | 1½" | 2" | 4" |
|---|---|---|---|---|---|---|---|
| Drawn lead waste | per ft. run | 1/- | 1/8 | 1/11 | 3/5 | 4/3 | |
| Do. service | " | 1/7 | 2/1 | 2/6 | 4/- | | |
| Do. soil | " | | | | | | 6/10 |
| Bends in lead pipe | each | | | | | 3/7 | 9/- |
| Soldered stop ends | " | 1/4 | 1/10 | 2/3 | 3/2 | 3/10 | |
| Red lead joints | " | 1/- | 1/2 | 1/5 | 2/1 | 2/8 | 5/5 |
| Wiped soldered joints | " | 3/2 | 3/10 | 4/6 | 5/5 | 7/2 | 10/10 |
| Lead traps and cleaning screws | " | | | | 16/2 | 21/7 | |
| Bib cocks and joints | " | 7/6 | 11/3 | 18/- | 48/- | | |
| Stop cocks and joints | " | 18/- | 20/- | 30/- | 75/- | | |

## PLASTERER.

| | | s. | d. |
|---|---|---|---|
| Render, float and set in lime and hair | per yard sup. | 3 | 4 |
| Do. Do. Sirapite | " " | 3 | 9 |
| Do. Do. Keen's | " " | 5 | 0 |
| Add sawn lathing | " " | 2 | 0 |
| Add metal lathing | " " | 3 | 6 |
| Portland cement screed | " " | 2 | 11 |
| Do. plain face | " " | 4 | 9 |
| Mouldings in plaster | per 1 girth | 0 | 3 |
| One-and-a-half granolithic pavings | per yard sup. | 6 | 11 |

## GLAZIER.

| | | s. | d. |
|---|---|---|---|
| 21 oz. sheet plain | per foot sup. | 1 | 6 |
| 26 oz. Do. | " " | 1 | 9 |
| Obscured sheet | " " | 1 | 11 |
| ⅛ in. rolled plate | " " | 1 | 1½ |
| ¼ in. rough rolled or cast plate | " " | 1 | 2½ |
| ¼ in. wired cast plate | " " | 1 | 9 |

## PAINTER.

| | | s. | d. |
|---|---|---|---|
| Preparing and distempering, 2 coats | per yard sup. | 1 | 6 |
| Knotting and priming | " " | 1 | 0 |
| Plain painting 1 coat | " " | 1 | 6 |
| Do. 2 coats | " " | 2 | 4 |
| Do. 3 coats | " " | 3 | 2 |
| Do. 4 coats | " " | 4 | 0 |
| Graining | " " | 3 | 0 |
| Varnishing twice | " " | 2 | 6 |
| Sizing | " " | 0 | 4 |
| Flatting | " " | 0 | 9 |
| Enamel | " " | 2 | 0 |
| Wax polishing | per foot sup. | 0 | 11 |
| French polishing | " " | 1 | 9 |
| Preparing for and hanging paper | per piece 2/- to 5/- | | |

* These prices apply to new buildings only. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 11 should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

## COMPULSORY ACQUISITION OF LAND.

In the recent case, Metropolitan Water Board *v.* Berton (1921, 1 Ch. 299), the question was raised whether the Water Board came within the definition of a "public authority" contained in the Acquisition of Land (Assessment of Compensation) Act, 1919.

By section 12, subs. (2) of the Act, "public authority" is defined as: "Any body of persons not trading for profit authorised by or under any Act to carry on a railway, canal, dock, water, or other public undertaking." The Metropolitan Water Board was established by Act of Parliament in 1902 for the purpose of acquiring and managing and carrying on the undertakings of the Metropolitan water companies named in the Act.

According to the report in this case, the Water Board consists of persons nominated by the various local authorities, with the exception of one appointed by the Conservators of the River Thames and one by the Local Government Board. Stock was issued to persons who took water stock in respect of their interest in the companies which were transferred, and the Board has to provide for the interest on this stock, redeem debentures, and provide for the sinking fund. If there is a deficit it can be made good out of the rates. This is only a very brief summary of what the judge said as to the constitution and duties of the Board, but it may suffice to enable the finding of the court to be appreciated. The court held that the true meaning of the section was that any body of persons authorised by statute to carry on a public undertaking which does not trade with the object of making profits for themselves or distributing profit as dividend is a "public body" within the meaning of the Act, but that a body of persons authorised by a special Act to carry on one of the undertakings referred to in the definition section of the Act of 1919 is excluded from the definition of "public authority" if the object of its trading is to make a profit for the purpose of distribution among its members. The Water Board came within the first body of persons not trading for profit. This interpretation of the Act will be of use in many cases which may arise.

It may be useful to refer to the circumstances which made it necessary to have recourse to the court in this case. By a section of the Metropolitan Water Board Act, 1913 (which incorporated the provisions of the Lands Clauses Acts), the Board was authorised to purchase a reservoir which formed part of one of the undertakings taken over by the Board, and in 1918 a notice to treat had been served upon the Governors of this undertaking, and they had delivered their formal claim. In December the respective surveyors of the parties had endeavoured to agree the compensation, but these negotiations had failed. The Acquisition of Land Act had come into force on September 1, 1919, and the Board contended that the matter would have to go to arbitration under that Act, but the Governors gave notices which purported to be under the Lands Clauses Act. This action was therefore brought by the Board claiming an injunction restraining the defendants from proceeding otherwise than under the new Act of 1919.

Section 1, subs. (1) of this Act provides: "Where by or under any Statute (whether passed before or after the passing of this Act) land is authorised to be acquired compulsorily by any . . . public authority any question of disputed compensation shall be referred to and determined by the arbitration of such one of a panel of official arbitrators . . . as may be selected in accordance with rules made . . . under this section." Section 2 provides: "In assessing compensation an official arbitrator shall act in accordance with the following rules"; and Rule 1 provides that no allowance shall be made on account of the acquisition being compulsory. In the result the decision was in the Board's favour, that, being a "public authority" as defined in section 12, subs. (2), compensation must be assessed under the new Act of 1919 and not under the Lands Clauses Act.

## TENDERS.

**Communications for insertion under this heading should be addressed to "The Editor," and must reach him *not later than Tuesday evening*.**

*** Denotes *accepted*. † Denotes *provisionally accepted*.**
**‡ Denotes *recommended for acceptance*.**
**§ Denotes *accepted subject to modifications*.**

ASHINGTON.—For erection of houses for the U.D.C.:—

| | |
|---|---|
| *J. W. Walker, 106 A type at £935 each; *G. & F. S. Field, 42 B type at £964 each; *W. Dykes, 48 houses B4 type at £1,053 12s. 6d. each. | |

BRADFORD.—For painting and cleaning the Central Home, Park-road. Mr. F. Holland, architect, 22, Manor-road, Bradford:—

| | |
|---|---|
| E. S. Walker, Bradford | £149 10 |

DENHAM PLACE.—Erection of 24 houses on Denham-place Estate, for the Middlesex C.C.:—

| | |
|---|---|
| *T. J. Lovell & Sons | £24,000 |

IPSWICH.—For painting the workhouse and Infirmary, Woodbridge-road, for the B.G. Mr. J. A. Sherman, 9, Northgate-street, Ipswich:—

| | |
|---|---|
| *A. Stearn & Son, Upper Brook-street, Ipswich | £643 0 |
| Pollard & Skerritt, S. Helen's-street, Ipswich | 698 10 |
| Fisk & Co., Ranelagh-road, Ipswich | 714 0 |
| F. Stearn & Co., Woodbridge-road, Ipswich | 749 0 |
| Boyce & Sons, S. Nicholas-street, Ipswich | 989 0 |
| J. Jepson, Cliff-road, Ipswich | 1,059 0 |

ISLINGTON.—For the erection of garage and workshop at the Liverpool-road Depot, for the Islington B.C. Mr. E. C. P. Monson, F.R.I.B.A., F.S.I., Architect to the Council, Finsbury Pavement House, E.C. 2:—

| | |
|---|---|
| *Geo. Bollom, Acton | £18,937 0 |
| Geo. Slade & Co., Ltd., Liverpool-road, N. 1 | 19,500 0 |
| Council's Building Department | 19,918 16 |
| Architect's Estimate | 21,280 0 |
| Thos. Shillitoe, Seven Sisters-road, N. 7 | 23,500 0 |
| C. H. Hunt & Son, High Wycombe | 24,499 0 |
| Ferris Bros., Acton | 25,000 0 |
| Hooper & Hooper, Wood Green | 25,700 0 |

KIRKCONNEL.—For the erection of 24 houses of three apartments at Kelloholm, for the Thornhill District Committee:—

| | |
|---|---|
| *Digger and brick work*— | |
| *J. Laing & Son, Carlisle | £7,097 6 10 |
| *Joiner and ironmongery*— | |
| *George Shankland, Kirkconnel | 6,280 11 5 |
| *Slater and roughcast work*— | |
| *John Brown & Sons, Sanquhar | 2,369 1 8 |
| *Plaster work*— | |
| *Pollock Brothers, Annan | 2,840 19 2 |
| *Painter*— | |
| *John Cullen, Sanquhar | 750 10 2 |

LAMPTON.—For erection of four cottages at Jersey-road, Lampton, for the Middlesex C.C.:—

| | |
|---|---|
| *W. J. Drinkwater | £4,468 19 6 |
| James Wills & Son | 4,513 15 0 |
| F. D. Hidden & Co. | 4,688 0 0 |
| Christian & Co. | 4,800 0 0 |
| G. W. Challis | 4,894 0 0 |
| R. J. Truscott | 5,154 0 0 |
| Dilliway & Elvoy | 5,297 0 0 |
| Pasterfield & English | 5,998 0 0 |
| W. A. Gray | 6,699 13 6 |

LEEDS.—Painting and cleaning work at Ashley-road, Chapeltown, and Roundhay Police Stations, for the T.C.:—

| | |
|---|---|
| *L. E. Wilkinson | £153 10 6 |

LEEDS.—Supply of (*a*) concrete mixer and stone breaker, and (*b*) 230 tons of cement, in connection with construction of Dewsbury-road Reservoir, for the T.C.:—

| | |
|---|---|
| *(*a*) T. W. Ward, Ltd. | £120 & £108 |
| *(*b*) Cement Marketing Co. | At 98/3 per ton |

LEEDS.—For painting work at hospitals, for the T.C.:—

| | |
|---|---|
| *H. Shann— | |
| Seacroft Hospital—Exterior | £1,547 10 |
| Seacroft Hospital—Interior | 973 4 |
| Killingbeck Farm—Interior and Exterior | 272 10 |
| Killingbeck Sanatorium—Interior | 385 0 |
| Isolation Cottages and Caretaker's House | 48 0 |

LEEDS.—For painting work at parks, &c., for the T.C.:—

| | |
|---|---|
| *N. Stead: Cross Flatts Park | £309 8 0 |
| *T. Kendall & Son: Burley Park | 235 14 6 |
| *J. A. Naylor: Stanningley Recreation Ground | 165 0 0 |
| *J. A. Naylor: Bramley Recreation Ground | 161 0 0 |
| *L. E. Wilkinson: Woodhouse Ridge | 295 5 6 |
| *H. Shann: Hunslet and Holbeck Cemeteries | 152 7 0 |

LEEDS.—For the erection of 24 houses on Hawksworth Wood estate, for the T.C.:—

| | |
|---|---|
| *J. H. S. Randall (*amended tender*) | £21,520 |

LONDON.—For extension of electricity power house, Millfields-road, for the Hackney Borough Council:—

| | |
|---|---|
| Marrable Bros., E. 11 | £41,200 0 0 |
| Wm. Moss & Son, Ltd., Loughborough | 43,232 0 0 |
| J. Jarvis & Sons, Ltd., E. 2 | 43,560 0 0 |
| Powers, Deane & Ransomes, Ltd., E. | 43,560 0 0 |
| Perry & Co. (Bow), Ltd., E. 5 | 43,707 0 0 |
| W. Jones & Sons, S.W. 1 | 44,380 0 0 |
| L. H. & R. Roberts, E. 5 | 45,167 0 0 |
| Arding & Hobbs, Ltd., S.W. | 45,617 12 10 |
| A. Roberts & Co., Ltd., W. 8 | 46,300 0 0 |
| W. S. Shepherd, S.E. 1 | 46,660 0 0 |
| Somerville-Barnard Construction Co., Ltd., S.E. 14 | 47,000 0 0 |
| Howard Farrow, N.W. 11 | 48,623 0 0 |
| A. E. Farr, E.C. 3 | 49,551 15 8 |
| Bovis, Ltd., W. | 50,897 0 0 |
| R. Wollaston & Co., E. 3 | 52,068 0 0 |
| Patman & Fotheringham, Ltd., N. 1 | 52,263 0 0 |
| G. Slade & Co., Ltd., N. 1 | 52,828 0 0 |
| Babcock & Wilcock, Ltd., E.C. | 54,605 6 0 |
| Porter & Little, E.C. 4 | 56,553 0 0 |
| E. A. Russell, Leytonstone | 56,600 0 0 |
| J. & W. Stewart, W. 1 | 58,405 0 0 |
| W. Lawrence & Sons, Ltd., E.C. 2 | 59,842 0 0 |
| R. M. Hughes, W. 6 | 59,971 0 0 |
| T. Baker, Chipgford, E. 4 | 65,504 12 5 |
| T. W. Robinson, S.E. 10 | 73,800 0 0 |

Following on the receipt of tenders the Committee ascertained to what extent, if any, they would have to be amended in order that British steel might be used, with the following result:—

| Name of Firm. | Tender. | British Steelwork by |
|---|---|---|
| Marrable Bros. | £42,897 | Approved sub-contractor, probably Powers & Dean, Ransome, Ltd. |
| Wm. Moss & Sons, Ltd. | 44,632 / 44,232 | Dorman, Long & Co. / J. Allan, Senr., & Sons, Ltd. |
| J. Jarvis & Sons, Ltd. | 43,560 | Drew, Bear, Perks & Co., or Dorman, Long & Co. |

The Committee recommend that the tender of Messrs. J. Jarvis & Sons be accepted.

LONDON.—For condensing pipe work in connection with generating station, for the Hackney B.C.:—

| | |
|---|---|
| *Aiton & Co. | £2,228 |
| Brightside Foundry & Engineering Co. | 2,509 |

LONDON.—For installation of electric light at South-East Branch Library, for the Islington B.C.:—

| | |
|---|---|
| *H. E. Martin, N. 1 | £173 10 |
| P. D. Morris, N. 1 | 196 10 (alternative fittings for reading room £33 extra). |
| Jacob White & Co., Ltd., N. | 374 13 4 (special fittings quoted for). |
| G. Hopkins & Sons (Clerkenwell), Ltd., N. 7 | Offer to carry out work under a schedule at fair rates of payment. |

LONDON.—For supply of materials to the Islington B.C.:—

| | |
|---|---|
| *W. & J. Glossop, Halifax: 44,000 gallons of tar, 11½d. per gallon. | |
| *H. V. Smith & Co.: Tar-coating roads—5/16 per yard super., at 4 yards per gallon, and 4½d. per yard super. at 5 yards per gallon. | |
| *James Gibb & Co.: Castings for road and sewer work, £387 1s. 6d. | |

LONDON.—For various works at the Hospital of St. John and St. Elizabeth, Grove End-road, N.W., in connection with the new Female Staff Home, addition to Dispensary, &c. Mr. Henry W. Binns, F.S.I., architect; quantities by Mr. Alfred Sprague, 104, High Holborn, W.C.:—

| | |
|---|---|
| George Parker & Sons | £3,544 |
| Roberts & Co. | 3,620 |
| John McManus | 3,636 |
| Colley & Son | 3,718 |
| Bovis & Co. | 3,744 |
| C. Tavener & Son | 3,911 |
| Pitcher & Co. | 4,073 |
| A. Knight & Son | 4,088 |
| Higgs & Hill | 4,117 |

PAISLEY.—For carrying out Whitehaugh housing scheme (124 houses), for the T.C. Mr. M. James Lee, Burgh Surveyor, Paisley; quantities by Mr. M. S. Dunlop, Paisley, and Mr. James Hutton, Paisley:—

*Builder*—
*Charles Johnson, Paisley.
*Joiner*—
*Hugh Young & Sons, Paisley.
*Plumber*—
*Geo. Martin, Paisley.
*Plumber*—
*James Wilson, Paisley.
*Slater*—
*A. Stevenson & Sons, Paisley.
*Plasterer*—
*Malcolm & Co., Paisley.
*Painter*—
*Wm. Osborne, Paisley.
*Electric Lighting*—
*Joseph Bell, Paisley.
Total £104,000.

PICKERING.—For erection of four houses at Allerston, for the Pickering R.D.C. :—

| | | | |
|---|---|---|---|
| J. Bolton | £3,802 | 9 | 9 |
| Mann | 4,500 | 0 | 0 |

(Referred to Housing Commissioner.)

PLYMOUTH.—Erection of one pair of houses of special concrete block construction and nine pairs of brick construction, for the T.C. :—

*W. J. Pearce..... £815 12s. 6d. per house.

ROMFORD.—For construction of surface water drain at Hornchurch, for the R.D.C. :—

*W. & C. French ..... £308 8 2

RYDE.—For the erection of 30 houses on the Swanmore site, for the T.C. Mr. B. F. Holness, Surveyor :—

| | | | |
|---|---|---|---|
| *Grit, Ltd., Portsmouth..... | £26,490 | 0 | |
| N. Holland, Ryde..... | 26,368 | 17 | |
| Frank Bevis, Ltd., Portsmouth.. | 28,624 | 0 | |
| J. Ball & Sons, Cowes (8 houses only) ..... | 6,976 | 0 | |

SHEFFIELD.—For painting at Brightside Baths, for the T.C. :—

*Smith & Snape, Sheffield ..... £410

SHEFFIELD.—For construction of first portion of reinforced concrete work in river retaining wall and foundations in connection with Central Stores Depot, for the T.C. :—

*Hodkin & Jones, Ltd. ..... £3,790 10

SHEFFIELD.—For painting work at Corporation Buildings, Snig-hill, for the T.C. :—

*J. & S. Collier ..... £282

SOUTHWICK.—For sewering Whiterock-place and Whiterock-street, and making up a portion of Whiterock-place, for the U.D.C. :—

| | | | |
|---|---|---|---|
| *C. V. Buchan & Co., Ltd., Southwick ..... | £590 | 0 | 0 |
| J. Parsons & Sons, Hove..... | 733 | 0 | 0 |
| J. Bodle, Ltd., Eastbourne..... | 890 | 0 | 0 |
| G. Percy Trentham, Ltd., London, E.C. 4 ..... | 971 | 18 | 1 |

STONEHAVEN.—For the erection of three blocks of cottages at Muchalls, for the D.C. Mr. G. Gregory, architect, 34, Market-square, Stonehaven :—

| | | | |
|---|---|---|---|
| *Mason work*— | | | |
| †A. Adamson, Laurencekirk.. | £2,819 | 16 | 0 |
| *Carpenter work*— | | | |
| †W. Dufton, Muchalls..... | 1,535 | 10 | 6 |
| *Slater work*— | | | |
| †R. Burness & Son, Stonehaven | 449 | 6 | 0 |
| *Plaster work*— | | | |
| †Roger & Baxter, Aberdeen.... | 727 | 19 | 0 |
| *Plumber work*— | | | |
| †W. C. Bryce, Aberdeen..... | 556 | 7 | 9 |
| *Painter and Glazier work*— | | | |
| †R. Murray & Co., Stonehaven | 124 | 7 | 0 |
| *Drainage work*— | | | |
| †A. Adamson, Laurencekirk.. | 510 | 8 | 2 |

WALLINGFORD.—For the erection of four brick cottages, each at Long Wittenham and Brightwell, Berks, for the R.D.C.—This work is not to be proceeded with.

WEYMOUTH.—For provision of new booking offices at the Esplanade, for the T.C. :—

| | | |
|---|---|---|
| *Theo. Conway, Ltd..... | £300 | 0 |
| Jenkins, Hitt & Grant..... | 460 | 0 |
| Albert E. Whettam..... | 440 | 0 |
| Bird & Cox, Ltd. ..... | 419 | 0 |
| G. F. Bowring ..... | 369 | 0 |
| Jesty & Baker ..... | 351 | 12 |
| J. A. Parsons ..... | 343 | 17 |

WITHAM.—For the erection of the first group of 12 houses on the Cock's Farm site, for the U.D.C. :—

| | |
|---|---|
| †I. D. Dean, Witham— | per pair. |
| 3 pairs Type No. 175..... | £1,746 |
| †Richards & Son, Witham— | |
| 3 pairs Type No. 138..... | 1,755 |
| †Richards & Son, Witham— | |
| Drains, fences and paths for 12 houses ..... | 440 |

WORTHING.—Supply of 400 yards of creosoted oak fencing :—

*F. Sandell & Sons—at 10s. per yard, and gate and posts at £3 1s.

WORTHING.—For the erection of six beach cabins, for the T.C. :—

| | | | |
|---|---|---|---|
| *W. J. Cearns, Carpenters-road, Stratford, E. ..... | £174 | 0 | |
| W. G. Benn ..... | 201 | 0 | |
| H. W. Sandell ..... | 217 | 10 | |
| Wm. Osborne & Co., Ltd. ..... | 231 | 0 | |
| W. G. Cornford & Sons ..... | 246 | 0 | |

Messrs. The Helical Bar and Engineering Co. have removed to 72, Victoria-street, S.W. 1, to which address all communications should henceforth be forwarded. Their telephone numbers (Victoria 1940 and 1941) and telegraphic address (Helistelba, Vic., London) remain unaltered.

Mr. William Henry Warren, LL.D., has revised his "Engineering Construction—in Steel and Timber"—the third edition of which is now ready, price 30s. net, and will in future be known as Part I of his work. He has also written a new volume to be called "Engineering Construction, Part II—In Masonry and Concrete." This volume is mainly devoted to considerations on the physical properties of materials such as cement, mortar, concrete, brickwork and stone construction, also the design of the more usual structures with these materials. This new part will be ready at the end of April at the price of 36s. net. Both volumes are published by Messrs. Longmans, Green & Co.

### STAFF DINNER.

THE annual staff dinner of the well-known marble firm, Messrs. Percy C. Webb, Ltd., was held on March 29, at the Villa Villa Restaurant, Gerrard-street, W. Some thirty guests were present, including representatives of the firm's various interests in this country and in Italy. The chair was occupied by the Managing Director, Mr. Percy C. Webb, who was supported by Mr. John Bradford, a co-director, and by the managers of the different departments.

After the loyal toasts had been drunk, Mr Bradford proposed the health of the Managing Director, and remarked that the firm had made great progress since its inception, and its success was mainly due to the untiring efforts of its chief.

In responding, Mr. Webb said a great part of his satisfaction in the success of the firm had been the opportunity it gave for permitting the staff to share in that prosperity.

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